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# Superintendents Hold Convention at Richmond

## Over Six Hundred From the Important Paper Making Centers of This Country and Canada Attend the Sixteenth Annual Meeting of the American Pulp and Paper Mill Superintendents' Association—Charles Champion is Elected President of the Association for the Ensuing Year—Representative Concerns Make Exhibits

[FROM OUR REGULAR CORRESPONDENT]

RICHMOND, Va., June 11, 1935—The Sixteenth Annual Convention of the American Pulp and Paper Mill Superintendents' Association, Inc., convened at the Hotel John Marshall, Richmond, Va., in a three-day session June 5, 6 and 7.

Following as it did, so closely upon the Supreme Court ruling on the NRA the meetings although adhering strictly to the original program, were subjected to the influence of the new problems which lay ahead without the government regulation by codes. Unscheduled but nevertheless keenly sensed on every hand, was an atmosphere of "sounding out" on the exigencies of the present and future policies under another, or revised program.

### Want NRA Gains Continued

Nearly all the speakers were constrained to touch upon the subject and it was the consensus of opinion that the paper industry as a whole would continue to observe the fundamental gains acquired by the NRA and proceed in a manner to preserve these benefits and possibly effect some improvements.

Pleas that the paper and pulp industry retain, by voluntary action, the good features of the legally extinct NRA were made by Charles W. Boyce, secretary of the American Pulp and Paper Association, and W. W. Pickard, former administrator of the industry's code authority.

Mr. Boyce evoked applause when he said: "The obligations of honor transcend those of law," adding that the pulp and paper industry under NRA raised wages, added to the number of employees and eliminated secret prices and rebates.

"Organization of the industry by divisions remains unaffected by the Supreme Court's NRA decision," Mr. Boyce asserted, adding that "the industry hardly will overthrow what it achieved under the NRA."

Industry, acting as independent units, must solve the problems left by the demise of NRA, he declared. "The sudden elimination of NRA from industry has created uncertainty. Labor is not assured NRA hours and wages, management does not know whether some competitors will resort to cut-throat competition, and stockholders are wondering about future dividends. However, the industry can regulate itself voluntarily."

Mr. Pickard declared "there is no reason for industry to go back to conditions existing prior to NRA." He emphasized that the feeling of industrialists toward each other is better than two years ago. He told the mill superintendents and executives to "stick to everything that was good in NRA, do your part, and all of you will benefit."

The business sessions opened on Thursday morning. William H. Brydges, Bedford Pulp and Paper Company, general chairman, called the convention to order and after extending a cordial welcome to the delegates turned the meeting over to Killey E. Terry, National President of the Association. Mr. Terry then called on the Reverend B. M. Persinger, D.D., for the invocation following which the Reverend Persinger conducted the Memoriam services for those members who passed away during the year.

### President Terry's Message

An address of welcome was extended by the Honorable J. Fulmer Bright, Mayor of Richmond. Then followed the reading of the President's message by Killey E. Terry.

Overproduction, reduced demands, higher material and labor costs and a narrower margin of potential earnings make these trying days for the pulp and paper industry, said Mr. Terry.

"The industry is continuously confronted with the ever-growing problems of business adjustment which sorely try the wisdom that management conduces to preserve its own economic usefulness and the existence of its various established units," he declared. "It looks more and more to the leadership of its mill superintendents—to augment the forces that are hard at work in every institution of the industry to insure stability and a more secure industrial position.

"The American Pulp and Paper Mill Superintendents' Association is definitely at the turn in the road and a program thorough comprehensive and constructive must be immediately inaugurated to assure our society's security and continued progress," he added.

At the general conference which followed the following papers were presented:

(1) Stock Pumps and General Service Pumps Used in Paper and Pulp Mills, William Garagan, Assistant Chief

Engineer, Goulds Pumps, Inc. (2) Offset Papers, C. G. Weber, U. S. Bureau of Standards, Washington, D. C. (3) Personnel Problems, C. S. Ching, Personnel Director, U. S. Rubber Company.

At the luncheon in the Auditorium of the Hotel John Marshall, Milton E. Marcuse, President Bedford Pulp and Paper Company, was the toastmaster, and introduced W. W. Pickard, former administrator of the Code Authority, and also the speaker of the occasion Charles W. Boyce. The timely remarks of these gentlemen dealing with the Supreme Court ruling on the Code have already been referred to.

**Afternoon Session**

Following the luncheon there were a series of group meetings on the following subjects:

SODA AND SULPHATE—B. D. Millidge, Chairman. "Results from the B&W Tomlinson Process for the Recovery of Chemicals and Heat from Kraft Black Liquor," L. S. Wilcoxson, Babcock-Wilcox Company. "Black Liquor Evaporation Operation," W. T. Hinckley, Chemical Engineer, Swenson Evaporator Company.

SULPHITE PULP—Vance P. Edwards, Chairman. "New Method of Buying Wood on a Cubic Foot Basis," Wallace Shymanski, Marathon Paper Mills Company; L. C. Kelley, Manager, Restigouche Company, Ltd. "Sulphite Digester Circulation," A. R. McAllister, Babcock & Wilcox Company.

GROUNDWOOD—O. B. Ingalls, Chairman. "Grinding Pulp with the Latest Type Great Northern Grinders," Geo. K. Walker, Superintendent Finch Pruyn & Co. "Making Pulp for One of the Newer Products, Insulated Board," John A. Wiener, Superintendent Oswego Board Company. "Care and Preparation in Making Pulp for the Better Grades of Newsprint," Everett H. Strout, Superintendent, International Paper Company.

BOARD—S. M. Hesser, Chairman. "Soaps, Felts and Slime," Dr. R. W. Mitchell, Technical Director, Magnus Chemical Company. "The Application of Individual Motors to the Wet End Sections of Paper Machines," R. R. Baker, Westinghouse Electric and Manufacturing Company. "The Cylinder Machine Strikes Back," Allan Hyer, Black-Clawson Company. "Features of the Suction Felt Roll and Adjustable Control Top Press Roll Drive," C. L. Ellis, Downingtown Manufacturing Company.

BOOK AND FINE PAPERS—Charles C. Champion, Chairman. "The Importance of the Calender Stack in Paper Manufacture," E. H. Berges, Manager Roll Department, Farrel-Birmingham Company, Inc. "Printers' Paper Trouble Encountered at the Government Printing Office," M. S. Kantrowitz, Technical Director, Government Printing Office, Washington, D. C. "Toledo Beater Control"—(with Moving Pictures), Cash Bryan, Strathmore Paper Company and Geo. D. Ormsbee, Toledo Scale Company.

TISSUE GROUP — Frank J. Timmerman, Chairman. "Questions and Answers," M. J. Ketter and Edward Den-Doven, Hoberg Paper and Fibre Company. "Improved Equipment for Tissue," by J. E. Goodwillie, Beloit Iron Works.

In the evening the guests enjoyed an old Virginia Style dinner served in the auditorium of the John Marshall Hotel. James F. Ryland, vice president of the Standard Paper Manufacturing Company was the toastmaster. The guests were entertained by Mr. Strickland Gillilan, humorist. John F. Atkin of Philadelphia, was the guest speaker.

**Friday Morning Session**

At the General Conference Friday morning the following papers were presented:

"Production and Uses of Sulphur," (Illustrated in a New Motion Picture Film), Courtesy of Department of Interior, United States Bureau of Mines, Washington, D. C. "Dyestuffs—Some Important Factors Affecting their Use in Paper Making," J. Carl Schmidt, Technical Demonstrator, E. I. DuPont de Nemours & Co. "Ink Receptivity," Dr. Wm. T. Diefenback, Chief Chemist, N. M. Huber, Inc. "Paper Makers' Problems on all Kinds of Printing Papers," Sumerville Eney, The Champion Coated Paper Company, New York City.

**Papers Presented in the Technical Section**

Many of the papers presented at the convention are printed in this week's issue of the Paper Trade Journal on page 69.

**Luncheon Friday Noon**

At the luncheon John B. Christian was the Toastmaster and Col. John A. Cutchins, Director of Public Safety of Richmond spoke briefly on the early history of Virginia, explained its connections with the present day traffic problems by the fact that Captain John Smith the founder of the city of Richmond, was halted at the Falls near Richmond, which is also the location of the Seven Hills from which Richmond derives the name of the City of the Seven Hills.

**Business Meeting**

President K. E. Terry presided at the annual business meeting and called for reports of the various committees. At this meeting a resolution was passed recommending to the Trustees of the Association that a new position be created for an executive secretary for the purpose of relieving Mr. Eminger of some of his present duties, for general promotion work for the good of the Association, to co-ordinate all work of the various divisions and to relieve the committees in charge of the annual convention of much of the work that is now imposed upon the local officers.

**The New Officers**

The following officers were elected for the ensuing year:

President, Charles Champion, Millers Falls Paper Company.

First Vice President, Frank J. Timmerman, Northern Paper Mills.

Second Vice President, B. D. Millidge, Howard Smith Paper Mills, Ltd.

Third Vice President, F. L. Zellers, French Paper Company.

Fourth Vice President, George M. Trostel, Champion Fibre Company.

Fifth Vice President, Casper E. Youngchild, Southern Kraft Corporation.

Secretary-Treasurer, Robert L. Eminger, 54 North Main Street, Miamisburg, Ohio.

**Banquet Friday Evening**

The banquet was held in the auditorium of the John Marshall Hotel on Friday evening, President K. E. Terry presiding. William H. Brydges was the toastmaster, and called upon Mr. Terry, the outgoing president for a few remarks, and also the new president Charles Champion, who in a brief address asked the co-operation of the officers, committees and members for their support in making the association a greater success in the coming year. Fred Rooney presented the past president's jewel to K. E. Terry and the L. D. Post trophy was presented by John Cornell of *Paper Mill* to K. E. Terry. After a few remarks by the Past President and officers the floor was cleared for dancing, which was enjoyed by the guests until a late hour.

Following, those who served on the convention committee:

General Chairman.....William H. Brydges
Executive Secretary.....Frank F. Molteni
Finance.....Milton E. Marcuse
Program and Entertainment.....John B. Christian
Papers.....George M. Trostel
Sports and Sport Jamboree.....E. Ryland Neblett
Ladies' Entertainment.....Mrs. Carl Magnus
Hospitality and Reception.....B. K. Steadman
Registration.....Carl Magnus
Transportation.....Heth Owen
Mill Visits.....B. W. Davenport
Publicity.....J. L. Hodgins

Bill Brydges and the entire committee are to be congratulated on the excellent program arranged for the enjoyment and comfort of the guests. It was done in true "Southern Hospitality Style." The papers were interesting and instructive—the entertainment superb, and for the golfers there was the Hermitage Country Club, a real sporty course.

Many of the guests arrived June 4 and early June 5 to participate in the Golf Tournament which was held at the Hermitage Country Club, and the prizes for the winners were presented at the stag dinner which was held on the evening of June 6. Following are the results:

**Superintendents**

Low Net Score—Tie between K. E. Terry, National President, of S. D. Warren Company who was presented with a bag contributed by Heller & Merz Company. And, Roy Frishbie, West Field River Paper Company, Russell, Mass., who also received a bag contributed by the Manhattan Rubber Division of the Raybestos Corporation.

Low Gross—First, Ross Pruette, vice president, manager of the Manchester Board and Paper Company, Richmond, Va., score 79, was presented with a cup contributed by Black & Clawson Company. Second, Bunn Beasely, Brown Paper Mills, Monroe, La., score 81, golf bag, contributed by Allis-Chalmers Company. Third, L. E. Wieser, National Folding Box Company, New Haven, Conn. Score 84, Ronson Cigarette Case and Lighter, contributed by Price & Pierce Company. Fourth, Brydone Millidge, Howard Smith Paper Company, Cornell, Ontario, one dozen golf balls, contributed by the Ohio Knife Company.

**Sales Representatives**

Low Net—First, Joe Hughes, Krebs Pigment and Color Company, Elizabeth, N. J. Score 66. Second, John Cornell, The Paper Mill, New York City. Score 70. Unusual, O. C. Cordes, Downingtown Manufacturing Company, Highest 137. Was presented with a shovel as a consolation prize.

Low Gross—First, H. S. Birkby, Standard Oil Company of N. J. Score 83, one dozen golf balls contributed by Rubber Division of the Raybestos Corporation. Second, Tom L. Sterling, Paper Makers Chemical Corporation, Holyoke, Mass. Score 84, one dozen golf balls.

**The Ladies' Program**

It was inspiring to see so many of the ladies in attendance. A program for their entertainment included:

Wednesday, June 5, there was contract and auction bridge on the Roof Garden of the John Marshall Hotel. This was followed by a dinner in the evening with special entertainment by Peter Joray. Thursday, June 6 included an all day sight-seeing trip to Williamsburg, Jamestown and Yorktown, with luncheon at the Refectory of the College of William and Mary. In the evening there was a joint banquet with the men, followed by dancing on the Roof Garden of the John Marshall Hotel. Friday there was a luncheon at the Country Club of Virginia, with visits to Maymont Estate and Gardens and to the Richmond Memorial Carillon which was especially played for the guests.

A gift in token of their appreciation was presented to Mrs. Carl Magnus who was in charge of the ladies' entertainment.

Picture Taken at the Annual Banquet of the American Pulp and Paper Mill Superintendents' Association

**Exhibits**

The Oliver-United Filters Company—Had on exhibition several different types of filters for savealls, deckers, washers and high density. Vacuum discharge was featured as were also two or three sheet removers. They also had on display an Oliver Young high flow filter valve. At this booth they were emphasizing Redwood construction of their saveall, which have stood the tests of many years. However, the equipment is made of several materials in metal such as copper, stainless steel and enduron, or of vulcanized rubber covered steel of white or black rubber.

The Appalachian Coals, Incorporated, Cincinnati, Ohio—Had an interesting exhibit showing the means of distribution of their products to the home for domestic use and also their conveniently located distributing points for various industries.

Paper and Industrial Appliances Incorporated, New York City—Had on exhibition Poirier weight governor, P. & I. Improved Froth Killer, Pulsometer Steam Pump, The Precision Consistency Regulator. They also had literature on and illustration of the Sturtevant Bale Pulper.

Elwell-Parker Electric Company—Had in operation an interesting motion picture showing the handling of products in the paper mill by their power trucks. Also on display were certain standardized parts of trucks showing recent improvement and especially emphasizing the improved heat treatment of metal parts.

Cheney Bigelow Wire Works, Springfield, Mass.—Had on display a cylinder mold of new surface construction which features pointed rods and high winding wire. They also exhibited a model dandy roll of simplified Trunyon construction. Newly developed solder seam was shown in dandy rolls as well as cylinder rolls.

Toledo Pipe Threading Machine Company, Toledo, Ohio—Had in their booth a power pipe machine and also a board displaying various types of threaders and cutters.

Phipps & Bird, Incorporated, Richmond, Va.—Laboratory apparatus and chemical solution showing the feeding of any type of solution at a constant rate.

Chromium Corporation of America, New York City—A very interesting exhibit of Chromium products featuring the new Crodon Plated Press Rolls and Screen Plates.

Smith-Courtnay Company, Richmond, Va.—These distributors displayed products of the New York Belting Company, Black & Decker Portable Electric tools, Fafnir Bearings, and other products.

CHARLES C. CHAMPION
President

F. J. TIMMERMAN
First Vice-President

Hartzell Propellor Fan Company—Had in operation a Charabay Ventilating Fan and literature describing their complete ventilating equipment.

Cameron Machine Company, Brooklyn, N. Y.—On the wall of this booth were illustrations of Mill Type Winders, one of which shows the largest winder in the world installed in the plant of the Edward Lloyd, Ltd., Sittingbourne, Kent, England. There was also a table display of rolls of all sizes slit on Cameron slitters as used in finishing room and converter plants. In this display were several samples of laminated materials, such as cellophane to paper—paper to cloth—parchment to parchment, etc. Also on display was an improved small cutter for rewinders.

Mount Chemical Equipment Company—An exhibit of Virginia Grastone for use in Smelters and other type furnaces.

James McGraw—Local Distributors showing Llewellen Variable Speed Transmission products and various types of valves and fittings.

Control Equipment Company, Buffalo, N. Y.—At this exhibit were on display a Myers Type C, consistency controller complete with stuff-box and Myers Automatic Gate Controller. They also had illustrations of the Myers Type C.R. consistency controller for large stock requirements, liquid level controller, pressure controller, and metering control for addition of water in meters.

Detroit Stoker Company, Detroit, Mich.—This exhibit comprises a series of photographs showing various installations of the Detroit Multiple Retort Stoker.

American Rolling Mill Company, Youngstown, Ohio—A display of their spiral pipe so arranged as to show the various sizes and types of ends. This also showed different types of coatings for various applications.

Johns-Manville and Eastwood Nealy, Belleville, N. J.—These two companies had a combined exhibit featuring the Eastwood Suction Box Cover Conditioner, which was in operation and demonstrated the efficiency of the machine on various types of material used for suction box covers. There was also a display of Johns-Manville Products for re-modernization in Paper Mills as applied to heat and pipe insulation. Their Eel-Slip material for suction box covers was also shown.

Ingersoll-Rand Company, New York—This company

# STORA QUALITY 32

## HIGHEST
## TEAR—FOLD—BURSTING—WHITENESS
## +

Progress means change. — Change is welcome if it means progress to new and better standards.

Change the furnish of any product and immediately you have another article—quite new, quite different.

Perhaps a New Furnish in your paper will give it greater strength, finer appearance, better performance and an enlarged field for its use; — provide the real punch to take it from the ordinary competitive field.

Stora, with its unique background of progress during the past eight centuries, has applied this spirit of change to wood cellulose manufacturing.

Stora Quality 32, the outstanding strong Bleached Pulp, is such a New Furnish, — one which has already improved many products. Convincing proof exists in many new and better papers made by progressive manufacturers who have learned its true value.

Yet its usefulness has scarcely begun. Bonds and ledgers—tag and bristols —white bag and envelope—onion skin, tissue and glassine—cover and coated stock and many specialties—are better, stronger and more enduring when made of Stora Quality 32.

Why not decide now to try a New Furnish with Stora Quality 32?

**STORA KOPPARBERG CORP.**
**230 Park Avenue New York**

had on display a heavy stock pump with new and novel features especially designed for paper mills. The new features include a solid casting with provision for removing rotor without the disconnection of piping with means also provided by which the casting can be rotated so that the discharge nozzle can be placed at any angle. This pump had suction head removed showing rotor in motion. The exterior illumination of red and green lights were very effective. Also shown was the class Orvl type of pump for light stock and white water. It is compact in the design and close coupled to motor of open impeller type. The RV type is also close coupled and is used for general water service and paper machine showers. This is a closed impeller type. All these pumps are made in any especial alloy. Particularly interesting was a casting which was shown made of their special alloy known as IR specification number 105 consisting of 29 Chrom, 11 nickel alloy.

J. Spencer Williamson, Jr., Inc., Richmond, Va.—Local distributors for mechanical equipment. In this exhibit were products of Julian Friez & Sons, Inc., Baltimore, Md., Sarco Steam Traps, New York, Logan Company conveyors, Louisville, Manhattan Rubber Products, New York, and Barber-Colman Company, Rockford, Ill., and also Falk Products.

Goulds Pump Company, Inc., Seneca Falls, N. Y.—Had a very interesting display of various types of pumps used in the paper mill, which included Sleeve Bearing Type Horizontally split casing, single stage double suction type with two bearings, and single stage, side suction, open impeller ball bearing type, and their Hydroil Centrifugal Purifiers. Particularly featured in this exhibit was their paper stock pumps for the paper mills.

### Those Who Attended

Among those who attended the convention were the following:

S. I. Anderson, Hooker Electrochemical Co.; John B. Allen, Chromium Corp. of America; A. J. Allison, Simonds-Worden-White Co.; J. J. Andrews, Fox Paper Co.

C. M. Baker, American Paper & Pulp Association; R. R. Baker, Westinghouse Electric and Mfg. Co.; E. H. Berges, Farrel-Birmingham Co.; B. Benson, Williams Gray Co.; J. M. Benjamin, Messinger Bearings, Inc.; H. O. Bing, Beloit Iron Works; R. E. Briggs, Draper Bros.;

B. D. MILLIDGE
Second Vice-President

F. L. ZELLERS
Third Vice-President

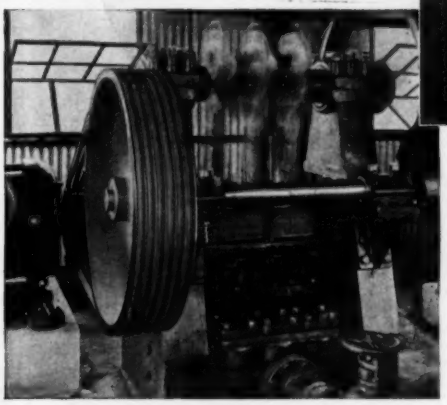
Alan R. Boyd, F. C. Huyck & Sons; G. A. Bogle, Central Fibre Products Co.; F. B. Bjornlund, Canada Paper Co.; Arthur M. Brooks, Raffold Process Co.; A. W. Barton, Norton Mfg. Co.; W. J. Booth, Gair Thames Container Co.; L. C. H. Beighey, Hammermill Paper Co.; J. M. Booth, Huron Milling Co.; R. A. Burroughs, R. A. Burroughs & Co.; F. D. Bowman, Carborundum Co.; S. V. Burrows, Amer. Cyanamid & Chem. Corp.; F. H. Buckholtz, Standard Oil Co. of La.; P. D. Bradley; William E. Brown, American Wringer Co.; R. C. Beam, American Rolling Mill Co.; F. K. Becker, Bird Machine Co.; H. S. Birkby, Standard Oil Co. of N. J.; R. S. Burr, Krebs Pigment & Color Co.; L. M. Booth, Booth Chemical Co.; V. A. Belcher, New Jersey Zinc Co.; H. H. Burrows, Manhattan Rubber Co.; Lawrence Bidwell, Riegel Paper Corp.; D. S. Baker, P. H. Glatfelter Co.; C. L. Bachelder, Paper Makers Chemical Corp.; H. R. Bailey, Union Screen Plate Co.; E. F. Bearce, Chillicothe Paper Co.; B. Beasley, Brown Paper Mill Co.; F. C. Boyce, Wausau Paper Mills; M. V. Brooks, Miamisburg Paper Co.; Carl K. Beecher, Draper Bros. Co.; L. H. Breyfogle, Draper Bros. Co.; E. N. Bechard, Eastwood-Neally Corp.; N. J. Burns, Sonoco Products Co.; W. H. Brydges, Bedford Pulp and Paper Co.; E. W. Bush, Provincial Paper Mills, Ltd.; W. E. Buchanan, Appleton Wire Works; D. Butterworth, H. W. Butterworth Co.

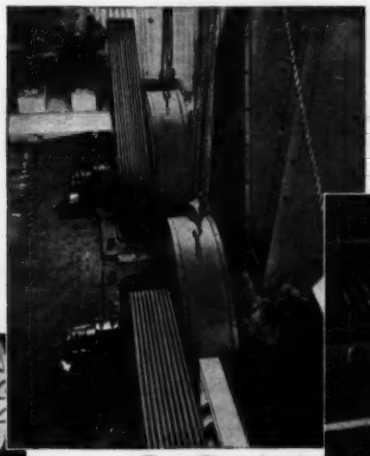
P. A. Collins, Warren Steam Pump Co.; G. B. Congder, Robertson Paper Co.; Walter Clifford, Penick & Ford, Ltd.; W. W. Cronkhite, General Electric Co.; C. H. Champion, R. T. Vanderbilt Co.; Wm. A. Cohen, Elk Paper Mfg. Co.; Bryant Currier, W. S. Tyler Co.; C. L. Crosby, Allis-Chalmers Mfg. Co.; John B. Christian, W. S. Tyler Co.; M. E. Cochran, Appalachian Coals, Inc.; Olin W. Callighan, Edgar Bros. Co.; W. B. Clements, Bryant Paper Co.; Carleton L. Clark, Nash Engineering Co.; H. A. Crown, Corn Products Refining Co.; Arthur E. Cabble, Wm. Cabble, Wire Mfg. Co.; J. F. Cronin, Cheney Bigelow Wire Works; A. B. Clark, J. O. Ross Engineering Corp.; W. H. Croft, Esleeck Mfg. Co.; O. C. Cordes, Downingtown Manufacturing Co.; Ray L. Clary, S. D. Warren & Co.; Charles Champion, Millers Falls Paper Co.; R. M. Cook, Hinde & Dauch Paper Co.; E. W. Clark, E. C. Atkins & Co.; John Cornell, *The Paper Mill;* Charles Conley, Downingtown Manufacturing Co.

A. B. C. Drew, Pairpoint Corp.; D. L. Dowling, Roots-Connersville Blower Corp.; John H. Draper, Draper

## OIL

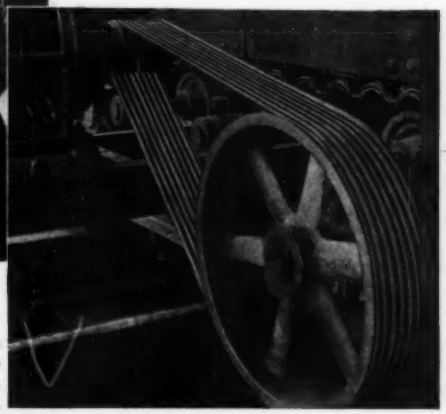
A Gilmer multiple V-Belt drive on a heavy duty Triplex pump, evenly transmitting a heavy load on a large speed ratio without carrying the pulsations of the pump through the belting to the motor.





## PAPER

Two sets of ten Gilmer V-Belts on a wood chipping machine. Correctly engineered, multiple drives repay their initial cost many times over in such installations on pulp making machinery.



## COAL

Gilmer V-Belts on a coal conveyor, operating under a variable load and large speed ratio, without protection from dirt, dust and moisture.

# GILMER V-BELTS

## pull troublesome V-drives up to par!

**In practically every industry difficult V-drives respond quickly to the efficiency of Gilmer V-Belts. Full-moulded and designed to *fit* V-grooves . . . and ruggedly constructed of three compositions of tough, flexible heat-resisting compounds . . . Gilmer V-Belts are free from wasteful slipping, have sufficient stretch and run "cool." You can depend upon them to provide efficient and economical power transmission under every operating condition. Sold in standard stock and special sizes to fit any make or size of drive.**

Gilmer BELTS

NRA

### KABLE KORD FLAT BELTING

Designed along the "two-belts-in-one" principle—combining a contactor belt and a power belt—Kable Kord is the most outstanding flat belting in industry today. On flat pulleys for group drives, short centers and pivoted motor bases, it transmits more pull per square-inch than any other flat belt made. Write for interesting Kable Kord Data Book. It's free.

L. H. GILMER COMPANY, Tacony, Philadelphia

## *Manufacturers* OF COMPLETE LINE OF POWER BELTING

**V-Belts—Kable Kord Roll and Endless Flat Belting—Planer Belts—Speedage Endless Fabric Belts—Cone Belts—Roving Frame Belts—Moulded Rubber Belts—Winder Belts—Spinner Belts—Refrigerator and Washing Machine Belts—Conveyor Belts—Round Roll and Endless Fabric Belting—Endless Belting—Endless Cotton Belts—Laundry Feed Ribbons.**

SPECIALISTS IN QUALITY BELTS SINCE 1903

Bros. Co.; J. D. Dieffenderfer, Paper Makers Chemical Co.; Frank G. Durkee, F. G. Durkee Co.; James Donaldson, Storra Kopparberg; J. R. Dufford, Paterson Parchment Paper Co.; George H. Detwiler, Heller & Merz.; John D. Dickson, Jr., R. T. Vanderbilt Co.; Wm. T. Diefenbach, J. M. Huber, Inc.; Robert B. Douglas, Ohio Knife Co.; Lewis Dozier, Rhinelander Paper Co.; Harry W. Deffew, Standard Paper Mfg. Co.; Buel W. Dean, E. D. Jones & Sons; C. L. Durkee, D. J. Murray Manufacturing Co.; George Docherty, Holyoke Wire Cloth Co.; J. H. Dow, Castle & Overton, Inc.; Byrd W. Davenport, Manchester Board & Paper Mfg. Co.; F. W. Drake, Lockport Felt Co.; V. S. Denison, Beloit Iron Works.

C. L. Ellis, Downingtown Manufacturing Co.; I. Ekholm, National Aniline & Chemical Co.; L. H. Everlien Appleton Woolen Mills; V. P. Edwardes, International Paper Co.; Ernest Erickson, Lagerloef Trading Co.; Edwin B. Ericksen, Pagel Horton & Co.; Summerfield Eney, Jr., Champion Fibre Co.; Robert L. Eminger, Secretary, American Pulp and Paper Mill Superintendents' Association; Albert E. Earhart, Continental Paper Co.

A. W. Foley, Hummel Ross Fibre Co.; James Fish, Paterson Parchment Paper Co.; Chas. Fuhrmeister, Ja., Oliver-United Filters Co.; L. E. Fitzgerald, Paper Maker Chemical Corp.; E. M. Ferguson, Horton Mfg. Co.; L. P. Fortier, Michigan Paper Co.; W. W. Fitzgerald, Northern Paper Mills; Sam Fortune, Rochester Paper Co.; H. J. Farra, Pusey & Jones Co.; H. F. Freas, Spaulding Fibre Co.; S. C. Foster, Bedford Pulp & Paper Co.; L. D. Frisbir, Westfield River Paper Co.

B. R. Gardner, Hooker Electrochemical Co.; Robert J. Gillespie, Maxwell Paper Co.; W. E. Genung, B. F. Goodrich Co.; E. R. Granger, Chromium Corp. of America; W. E. Greene, Stowe & Howard; M. L. Gilman, Brown Co.; L. L. Griffiths, Jr., Heller and Merz.

R. C. Harper, Times-Dispatch; H. R. Holman, Simonds-Worden-White Co.; H. R. Harrigan, District of Columbia Paper Mfg. Co.; A. B. Hettrick, Southern Mineral Products Co.; W. M. Heald, John H. Heald Co.; Ed. O. Hemstreet, The Carborundum Co.; Ray E. Harter, R. T. Vanderbilt Co.; J. L. Hollihan, Port Huron Sulphite & Paper Co.; A. C. Hancock, Convention and Visitors Service, Niagara Falls; L. W. Hutchins, Standard Oil Co. of New Jersey; R. W. Hamilton, Nashua River Co.; Geo. Hardaker, Sinclair Co.; R. W. Hynes, Newton Falls Paper Co.; J. E. Hughes, Krebs Pigment & Color Corp.; J. D. Haskell, Dilts Machine Works; Allan Hyer, Black-Clawson Co.; J. M. Hemphill, Johns-Manville Inc.; C. W. Hayden, Hayden Wire Works; W. T. Harte, John W. Bolton & Sons; J. H. Hayes, Waterbury Felt Co.; H. F. Hoffman, General Dyestuff Corp.; G. A. Hermann, Hermann Mfg. Co.

C. E. YOUNGSCHILD
Fifth Vice-President

O. B. Ingalls, Pejepscot Paper Co.; H. E. Ingram, General Chemical Co.

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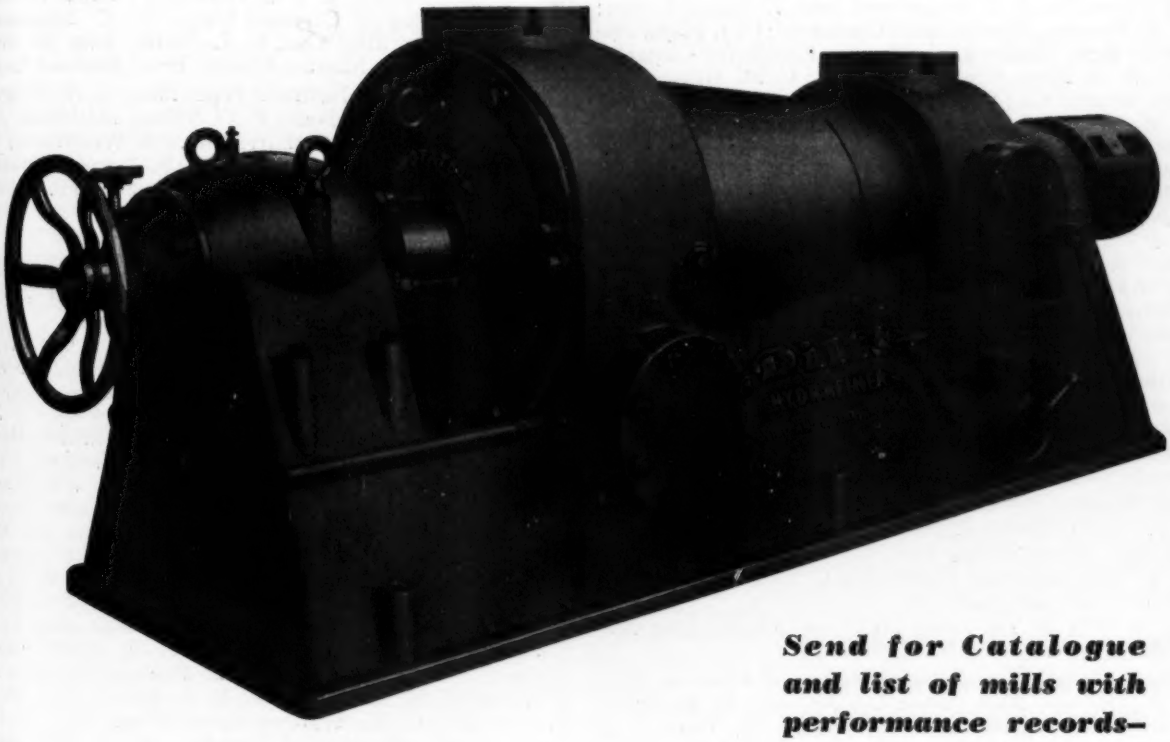

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# Moving Forward*

By Charles W. Boyce[1]

Wherever business men are gathered, it is a safe bet that their No. 1 topic of conversation is the NRA. In the New Deal earthquake of a couple of weeks ago that institution suffered severely. Even though we may have had firm conviction from the beginning that it was not constitutional, the sudden declaration by the Supreme Court of that fact surprised us. Apparently also the Administration was surprised, for alternatives were not immediately ready.

### Created an Immediate Vast Uncertainty

Whatever our opinion of the NRA, its sudden elimination from the industry picture has, to say the least, created an immediate, vast uncertainty. Labor is not assured of continuity of hours and wages. Management has no assurance that competition will not again descend to the level of cut-throat warfare. Stockholders may well feel some uncertainty as to the probable date when dividends, if any, will be paid.

What shall industry do about this situation? As I view it, this question must be answered by industry individually and each in its own manner. The Administration's announcement in yesterday's papers indicates clearly that the Federal Government finds itself unable to give for the time being the degree of cooperation that it has in the past in the so-called partnership of business and government. Sooner than we had expected industry now finds itself upon its own. The degree to which subsequent legislation will attempt to govern business activities depends upon the job industry does by itself in the next few months.

Most anyone could find much to criticise in the NRA and in its administration. It tended to be inflexible. It was bound up in endless red tape which, in the accumulation of details that required approval, may have ultimately amounted to a species of domination. Its policies were subject to far-reaching and sudden modification by Executive Order, in the formulation of which industry had no part. Many of its benefits were subject to trading. Compliance action seemed always hesitant.

### Did Not Vitiate NRA Principles

These short-comings, this hedging, did not, however, vitiate the NRA principles in those industries in which leadership could see beyond bothersome detail, and in which wisdom forbade blind dependence for compliance, advice and assistance upon the NRA administrative staff. In those industries in which self-government was not relinquished and self-discipline was strong, code regulation proved successful. To my mind these attributes were far more important than any attempt by mandatory law to legislate good behavior. No law can be wholly successful that does not meet the will and the desire of those whose conduct it is designed to govern. Something more than law is required; a high degree of voluntary cooperation is essential. Code administration reached its highest form of development and its greatest success among those industries whose members, not necessarily believing blindly in all principles of the Act, yet nevertheless religiously abided by its terms and by the provisions of its codes. In the final analysis, the NRA encouraged industry to set about the solution of its own problems. The NRA simply endorsed those plans of business men that it found consistent with policy; and it gave some protection from the searching eyes of the Federal Trade Commission and the Department of Justice. The NRA itself passed no miracles.

American paper and pulp manufacturers were not in 1933 wholly unacquainted with cooperative effort. The paper industry which throughout its long history has come face to face with many difficult industry-wide problems, actually initiated the trade association movement in this country. The original charter of the Writing Paper Manufacturers Association, for instance, is dated 1819. The American Paper and Pulp Association was organized in 1878, the first national association covering a whole industry. Since that time there have been book, wrapping, tissue paper and other grade associations. In fact most manufacturers have at some time or other been connected with industry movements to improve production and marketing conditions. But before the NRA the activities of organized groups were always handicapped. The Anti-Trust Laws loomed always on the horizon and many never attended an association meeting without believing that the heavy hand of the law hovered close by.

Although the NRA did not alter the Anti-Trust Laws except as expressly provided in the codes, the vast ma-

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.

[1] Secretary, American Paper and Pulp Association, New York.

jority of the members of the industry did forget their fears for the time. They did meet; they did discuss their problems; and they did go far in solving many problems. By their own efforts they brought industry back from the brink of wholesale demoralization. The greater participation spells the greater success of cooperative activities during the past two years.

When I say that by and large code operation in the paper and pulp industry was successful, I am not necessarily expressing my own opinion. I am, rather, expressing the composite opinion of many with whom I have come in close contact. Few could truthfully endorse all provisions of the Act itself or all aspects of the procedure that was set up for administrative purposes; few could endorse all actions of the various Code Authorities; yet a broad summarization of achieved results indicates clearly that the industry was benefited.

### Year 1934 Set Precedent

In fact, the year 1934 set a precedent. The paper industry operated over-all at not to exceed 60 per cent of capacity, yet it paid living wages. It did eliminate many vicious marketing practices that had existed but a short time before. Although paper prices, obviously somewhat higher than in pre-code days, increased less than the prices of most other manufactured products, the industry operated upon a reasonably sound basis. In literal compliance with the spirit of the Administration's program the paper and pulp industry did its full share.

Never before in the history of the industry has this happened when production for such a prolonged period amounted to such a small percentage of capacity. This is an accomplishment that will go down in the history of the industry. The precedent having been established, is there any reason why it should not be repeated annually from now on? The means of accomplishing this is now occupying the thinking of the industry.

The divisional associations are now holding meetings. By analysis of statistical fact and by discussion each is formulating its program of voluntary cooperation. The American Paper and Pulp Association has scheduled meetings at which the industry program will be set up, it is contemplated, and the programs of the Divisional associations will be coordinated. The mere fact that these meetings are being called and that they are being attended by the chief executives of the member companies is assurance that the paper and pulp industry does not intend to throw overboard what it has been able to achieve under the NRA.

### Paper Industry Fortunate In Its Code

The paper and pulp industry was fortunate in its code. Although some provisions of the General Code did not meet the requirements of the last changes in NRA policy, the code proved, however, to be a workable instrument. It is true that open price filing did not stop price cutting and unfair trade practices in some instances, but in most divisions it did eliminate the secret prices, rebates, violations of trade customs that were common prior to the code. The General Code did raise wages, and it did lead to the employment of more productive workers than were ever before employed.

Most companies were able to adapt their operations to the requirements of the code, and they did so voluntarily. Compliance was on the whole not troublesome. Violations were the most frequent, of course, in the price filing provisions. Some violations could be correctly termed as "chiseling"; others resulted from peculiar conditions in the division and from incomplete coverage of procedure and detail in the code. In one large section of the industry, agents' commissions constituted a most serious problem which eventually led to the elimination of price filing.

Yet, the reported unit sales values have not sagged badly. It is true that there were few increases. At times I have thought that the open price filing system would eventually lead to a gradual lowering of prices, because the system gives undue importance to filings of manufacturers whose price policies never before were influential in establishing market prices. In some instances manufacturers producing 100 tons of a given product per day filed to meet a lower price posted by a manufacturer who produced but 5 tons a day. Such circumstances were, of course, to be expected where all prices are known by all competitors. But on the whole these cases were rare and manufacturers through their analysis and discussion of facts learned to evaluate correctly the determinants of price and marketing conditions in most divisions.

### Program Can Continue

I have discussed in these broad terms the results of the paper and pulp industry's code administration program not necessarily for the purpose of creating in your minds a feeling of loss through the declaration of the unconstitutionality of the NRA, but to emphasize the fact that if the industry so desires, the program, with little modification, can continue. The greatest accomplishment of the NRA, from a permanent point of view, was the development of the industry's organization structure.

In its code the industry set up divisions which comprise groups of competitors. The code gave each division a maximum of self-government. The code set up in the central group, the Executive Committee of the American Paper and Pulp Association, a body to handle certain functions that cut through the divisional lines and to act as a Court of Appeals upon matters referred to it by the divisions. The Paper Industry Authority, although pressed by the officials of the NRA to exert rigid control of the actions of the divisions, never lost its original character; it persistently refused to violate the principles upon which the code was based, particularly the principle of divisional self-government. For the first time a clear-cut line of demarcation was established between the functions of the divisional associations and those of the central body.

The declared unconstitutionality of the NRA need not affect this structure except as the industry may desire. The same personnel make up the executive committees that comprised the Executive Authorities. The Paper Industry Authority was the Executive Committee of the American Paper and Pulp Association and the Board of Governors, which did not have a code status, but which was used to determine code policies and to bring about coordination, now becomes under the constitution of the American Paper and Pulp Association the body that sets industry policies. These tools remain.

### Greater Understanding of Anti-Trust Laws

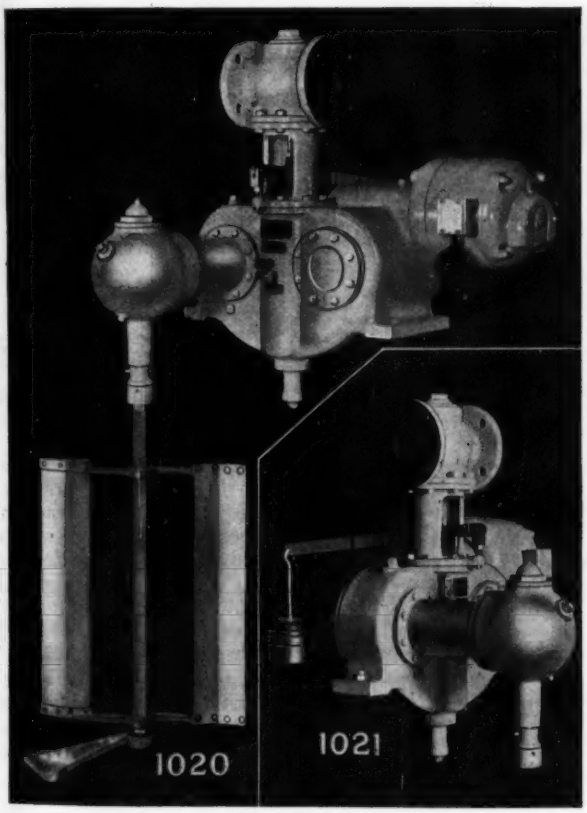
The attitude of industry toward association work is entirely different now and it is likely to continue to be different in spite of the fact that the situation as it exists today is identical with that which existed prior to NRA. I do not mean to imply that the Anti-Trust Laws are less awesome. I do believe, however, that there is a greater understanding of the purpose and intent of those laws, and I believe that under the leadership of those men who have during the code era given generously of their time and ability, a legally sound and wholly practical program of voluntary association activities can be built up. I believe the industry feels that such a program is essential.

Industry has certain well defined obligations. It is re-

# IT TAKES TIME

**to demonstrate the worth of a new piece of equipment and that is literally true of regulating devices which have to deal with many diverse conditions.**

## THE MEYERS-MESCO CONSISTENCY REGULATOR




**has stood the test of time and is regulating consistency in scores of mills well known to the trade. The number is increasing month by month.**

## THERE IS A REASON

**for it and that reason is the fact that this regulator operates on a principle that is so simple and fundamental, that it could not fail to work.**

**There is no need for guesswork. Ask your neighbor or some one who is using Meyers-Mesco Control or write us for reference to mills whose requirements are similar to yours.**

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sponsible to the public for supplying its products upon an economic basis, for pulling to use the proven developments of technological and economic research in order that it may supply its consumers with their requirements at reasonable cost. Industry is responsible to its Government for its share of the public expense. Industry owes a fair return in the form of interest or dividends upon the funds lent to it for its establishment and maintenance. It has, in the broad field of social improvement, large responsibilities in respect to working conditions.

Both experience and theory indicate plainly that an industry that cannot so manage its affairs that there is left a positive difference between its costs and its selling prices cannot meet its responsibilities. Nor can any company in an industry meet its individual responsibilities if the industry permits the creation of conditions that destroy reasonable chance to earn a difference between cost and sales value.

#### Paper Industry Widely Spread Geographically

The paper and pulp industry is widely spread geographically. Practically every local, urban and rural situation is included in the sum total of its operations. Some mills are located in highly urbanized sections and their operating conditions are vastly different from those that are located in isolated rural communities. Some mills are located close to markets and others must ship long distances with consequent delay and greater cost. Some mills are old with relatively small unit production; others are new with large unit production. Some mills are adequately financed; others exist upon a hand-to-mouth basis.

These variations are reflected in marketing policies and practices. They are also, as you know, determinants of production possibilities and their cumulative effect when left entirely to the policy of the individual may lead to a price-cost relationship that wipes out the profit chance, particularly in an over-supplied market.

Up to 1926 except for relatively short periods, the consumption of paper in the United States rose in an unprecedented and unbroken line. Problems of over-production did not then seriously threaten the stability of the industry for there was a measure of production control in the restricted supply of papermaking materials.

But in the 1920's technical development whereby new woods and new processes could be used broke down the natural restrictions to expansion. Then the industry expanded and in doing so it piled up an accumulation of capacity that was not subsequently needed. Then the industry was not sufficiently organized to handle its problems. It was reduced to a position where it could not meet its many obligations. When later organized, the industry was able to stop demoralization; it now approaches the point where it can meet its responsibilities.

#### Future Without Visible Limit

As to the future, the possibilities of paper manufacture are without visible limit. All natural restrictions have been outgrown. Now the balancing of production and consumption cannot be left to chance. It must depend upon the character of company and industry management. How can any industry, much less one such as the paper industry which has probably the slowest turn-over of any major American industry, operate upon such a basis that it can meet its obligations, by the old hit-or-miss methods? The experiences since 1929 prove this impossible.

I think this is clearly understood and I believe the industry will continue its programs of self-government and that it can attain by itself measures of stability as expressed in terms of employment, payrolls, production and service, that will rank with the best effort of American industry.

In conclusion, I want to pass on to you part of a message that was read at the Tuesday's Book Paper Meeting. It is that the obligations of honor transcend those of law. We do not now depend upon law; we depend upon an even greater governor of the affairs of men; we depend upon honor. In the paper and pulp industry, surely that is enough.

## Canadian Lumbermen Ask Exemption

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 10, 1935—Lumbermen and pulp and paper interests interested in lumbering have asked the federal Parliament to exempt them as regards woods operations from a bill introduced into the House of Commons providing for the eight-hour day and 44-hour week. It has been represented to the government that operations in the lumber industry are subject to delays owing to the weather and seasonal conditions. Provincial legislation fixes a monthly rate for payment of employees in lumbering camps and it is contended that it would add 25 per cent to the cost to carry out the eight-hour day provisions. The English market absorbs 75 per cent of the export from the Atlantic seaboard, and raising the cost of production would tremendously curtail Canadian lumbering operations in competition with Northern Europe. When the bill was in committee, the Hon. Arthur Meighen, government leader in the Senate, said that transportation of logs by water did not come under the bill. He doubted if operations in the woods were under the provisions, but said even if they were, the Governor-in-Council had power to deal with the question of granting their exemption.

The bill is still under consideration.

## Bird & Son To Pay Service Bonus

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 10, 1935—Bird & Son, Inc., of East Walpole, Mass., announced to employees on June 6 that net earnings for the first six months of 1935 having been sufficiently large, the semi-annual service bonus will be paid June 30. The statement is as follows:

"To those who, on June 30, 1935, have been in continuous service of Bird & Son, Inc., for over five years, payment will be made of 4 per cent of the normal six months' earnings. To those who have been in continuous service of Bird & Son, Inc., for over two years, but under five years, 2 per cent of normal six months' earnings will be paid. This service bonus is based on the normal six months' earnings figured as twenty-six weeks of forty hours each at the present weekly or monthly rate of each individual."

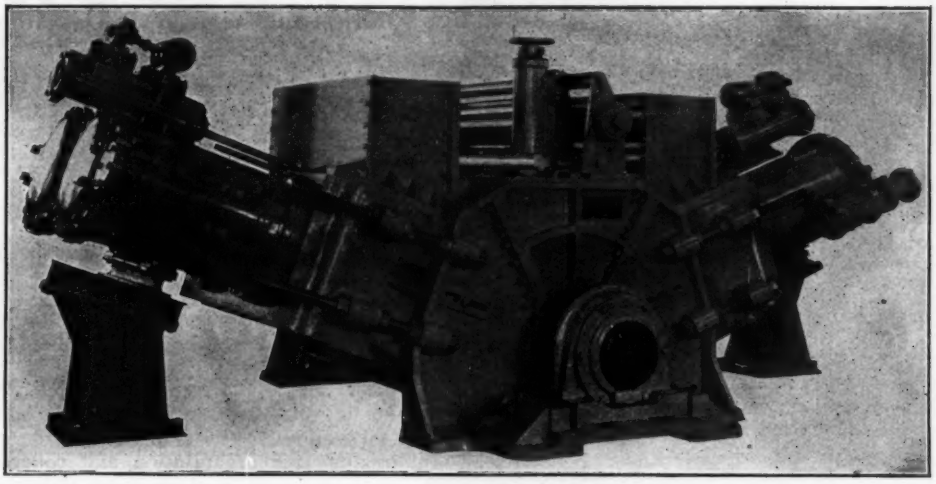
While all the company's volume of business in all departments has been larger than last year, competitive price situations have caused some departments to show losses. Total net profits, however, are somewhat better than for the same period of last year, the company states.

## New Freight Rate Order

Increased freight rates are expected to result from an order issued last week by the Wisconsin Public Service Commission. Temporary increase of rates is granted on shipments between Wisconsin points, to correspond to higher rates on interstate traffic recently allowed by the Interstate Commerce Commission. These new rates can be made effective on a day's notice, and continue until June 30, 1936. Railroads were cautioned against taking advantage of the new order to their own detriment in volume in competition with motor truck lines.

# The Great Northern Grinder

U. S. Patent No. 1757031.



The Great Northern Grinder will enable you to reduce your operating costs and yet maintain maximum production of high-quality pulp. This grinder is simple and sturdy in construction, low in first cost, economical to maintain, and occupies less space than any other type of modern grinder.

With its many outstanding advantages, this grinder is the most important development in years in the art of making groundwood pulp. Seven years of experimentation and research, followed by three years of successful operation preceded the offering of this four-foot wood grinder to the industry.

Pre-measured charges of wood, delivered automatically to the pockets, and ground under pressure applied close to the face of the stone, eliminate binding and the grinding of wood on end.

The wide pockets, utilizing a maximum of the grinding surface of the stone, and the positive hydraulic pressure under which the grinder operates, make possible most accurate control of the grinding process, and allow production of 20 tons per stone and upward, of highest quality pulp.

The operation of the Great Northern Grinder is entirely from one floor, reducing labor and operating hazards to a minimum and eliminating the necessity for expensive wood elevating equipment. In addition, it allows this grinder to be installed in many existing grinder rooms with but minor building changes.

The wood is brought to the grinder by a water conveyor—the simplest form of conveyor to install, and the most inexpensive to operate. Furthermore, the water conveyor cleans the wood, keeping the grinder free from pieces of bark and sawdust which adhere to the wood when mechanical conveyors are used.

We should welcome the opportunity of making, without obligation on your part, a study of the adaptability of the Great Northern Grinder to your groundwood room.

MM

## MONTAGUE MACHINE COMPANY

Turners Falls, Mass.

# Consolidated to Expand Paper Mill Facilities

## Construction of $60,000 Addition to Finishing Room of Main Plant At Wisconsin Rapids Planned—Permanent Machinery Manufactured by Beloit Iron Works Installed for New Patented Process of Coating—Substantial Market for New Paper Developed

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 10, 1935—With its new coating process now in full operation, the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., is planning to expand its mill facilities. Construction is soon to be started on a $60,000 addition to the finishing room at the main mill at Wisconsin Rapids. It will be 48 by 290 feet in size, two stories in height, and of brick, steel and concrete construction. This unit will adjoin the present finishing room.

Construction is delayed temporarily because the site includes part of a city street it will be necessary to close off. The company owns the land on both sides of the street at this point, but found it necessary to gain consent of property owners elsewhere, and the city administration. Work will be started immediately after the legal procedure is completed.

After two years of experimenting with a new patented process of coating, the company has installed permanent machinery manufactured by the Beloit Iron Works to manufacture this new grade of paper. It has developed a substantial market.

Production was started in an experimental way by removing several driers from the largest paper machine. The experimental machine was erected in this 25-foot space and gave such satisfactory results that permanent equipment was installed. The device is patented in the name of Peter J. Massey, and is owned jointly by the Consolidated and the Seaman Paper Company of Chicago.

Development of this process represents extensive research and engineering genius, eventually resulting in manufacture on a large scale commercial basis. The process is strikingly different from anything previously attempted. The equipment consists of mixers, grinders and tanks for preparing certain minerals and adhesives, mixed under a patented formula. The solution is pumped in paste-like form to a series of rubber covered rolls which produce a uniform film by rotation and oscillation. Two large rubber rollers apply the film to the sheet, and in some of the new grades it represents one-third of the thickness and weight of the paper.

The film is set by air driers before it comes in contact with the cylindrical driers. From that point it is supercalendered to produce a high glossy finish. During the tryout period, a special mechanical arrangement made it possible to pass other grades of paper over the coating section so no long shutdowns were necessary.

Eighty to ninety tons a day can be turned out on the present equipment. Additional technical men and operators have been employed to take care of the added production.

As a high quality substitute for the more expensive enamel stocks, the Consolidated product is creating a near sensation in the printing trade. It satisfactorily produces the finest of half-tones in both black and color work. One of the large orders recently received was from a printing-plant producing millions of copies in color of a publication for the Ford Motor Company. The magazine field is especially attractive to this new variety of stock, because of the quality obtainable at a low price.

The present marketing outlook assures a steady run on this grade.

### Labor Relations Bill

Manufacturers are expressing opposition to a bill introduced in the Wisconsin Legislature, known as the Severson-Sigman labor relations bill. It seeks to wipe out the company union, establish a charter for free organization, and guarantee collective bargaining. Advocates of the measure claim it would help prevent strikes, lockouts and industrial strife. Opponents express distrust of the bill as offering an entering wedge for communistic control of labor organizations, and the beginning of new industrial disputes. The bill is modeled closely after the Wagner labor bill now before Congress. It would create a three-man Wisconsin labor relations board, to be appointed by the Governor, to enforce the state labor laws authorizing free organization and collective bargaining, including secret elections on union affiliation.

### White Elephant Contest

Completing a three months' non-accident record in any of its departments between March 1 and June 1, a "white elephant" contest conducted at the Kimberly-Clark Corporation's mill at Kimberly, Wis. brought the undesirable white elephant statue to the desk of Joseph Doerfler, mill manager. Employees staged a parade through the mill, ending at his office.

The rule was that any department having a lost time accident would display the white elephant. Since there were no takers in 110 days of operation, Manager Doerfler had to take the gift. A band headed the procession through various departments. A presentation speech was made by Homer Bowlby of Appleton, a humorist engaged for the occasion. He was royally clothed as the "King of Siam," where the white elephant originated. He congratulated the mill on its record.

### Logging Operations Opposed

An appeal to President Roosevelt and to the Governors of Wisconsin, Michigan and Minnesota is being made by the Isle Royale National Park Association to have the Consolidated Water Power and Paper Company of Wisconsin Rapids, Wis. defer its logging operations now under way on Isle Royale, in Lake Superior. Resolutions to that effect were adopted at a meeting last week at Iron River, Mich. by the association. The opposition to logging comes from proponents of the purchase of private holdings on the island by the federal government so this spot can be made a national park. An attempt will be made to use forest funds for this purpose. The Consolidated Company is not averse to the national park idea, but feels logging should proceed in the large stand of spruce it owns there.

The company is now making preparations for the annual rafting of pulpwood across Lake Superior. The piling at the Ashland, Wis. receiving docks is being prepared, and the booms are being put into shape. The tug *Butterfield*, of the Newaygo Tug Line, subsidiary of the Consolidated, will leave the latter part of this month to bring over the first raft, for reshipment by rail to Consolidated mills.

# The WISE CHOICE for PULP and PAPER PLANTS

## NATIONAL U S S
### stainless and heat resisting
## PIPE AND TUBES

Modern pulp and paper plants with their wide variety of products cannot afford to be tied up for replacements or repairs on account of corroded pipe or tubes. Efficiency in production and quality of product depend on the performance of equipment and it is a serious annoyance to have such equipment go "hay wire" on account of failing tubular parts. Heater coils, digestor relief lines, pulp stock lines, bleaching tank piping and similar lines will give much longer service if made from NATIONAL U S S Stainless and Heat Resisting Pipe and Tubes. This superior material cuts down operation costs and results in new measures of safety, economy and durability. It is highly resistant to corrosion, even under intense heat, and especially resistant to the action of acids commonly present in pulp and paper making. Available in a wide range of diameters, wall-thicknesses and lengths. NATIONAL engineers and metallurgists will gladly give further information. Correspondence is invited.

[*U S S Chromium-Nickel Alloy Steels are produced under the licenses of the Chemical Foundation, Inc., New York, and Fried. Krupp A. G. of Germany.*]

**NATIONAL TUBE COMPANY,** *Pittsburgh* - - - - - - - - - - - - - - PIPE AND TUBULAR PRODUCTS
**AMERICAN SHEET AND TIN PLATE COMPANY,** *Pittsburgh* - - - - - - - - - SHEETS AND LIGHT PLATES
**AMERICAN STEEL & WIRE COMPANY,** *Chicago* - - COLD ROLLED STRIP STEEL, WIRE AND WIRE PRODUCTS
**ILLINOIS STEEL COMPANY,** *Chicago* - - - BARS, PLATES, SHAPES, SPECIAL AND SEMI-FINISHED PRODUCTS
**CARNEGIE STEEL COMPANY,** *Pittsburgh* - - - - - SHAPES, PLATES, BARS AND SEMI-FINISHED PRODUCTS

*Pacific Coast Distributors*—COLUMBIA STEEL COMPANY, San Francisco, Calif. *Export Distributors*—UNITED STATES STEEL PRODUCTS CO., New York, N. Y.

United States Steel Corporation Subsidiaries

USS STAINLESS AND HEAT RESISTING STEELS

# Boston Paper Market Conditions Irregular

## General Average of Sales Considered Fairly Satisfactory—Some Fine Paper and Wrapping Paper Merchants Report Business Slower Since Adverse NRA Decision—Others Declare Demand Well Sustained—Prices Generally Holding to Schedule

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 10, 1935—Statements in the wholesale paper trade here were somewhat diversified as to business during the week, but the general average of sales is estimated as fair. Some merchants in both the fine paper and wrapping paper divisions intimated that business was slower on account of the NRA decision and others that the demand was holding up rather well, in spite of the NRA ruling. In fact, a larger volume of orders is reported among the mills in the fine writing paper district. A wrapping paper dealer noted that there was "a little pickup." Prices were well maintained. The box board market continued quiet.

The demand for paper stock, as a whole, was at least fair; for some grades decidedly active. Many price changes took place. But of twenty alterations, nine were advances and eleven declines. A dealer, in briefly commenting on the market, noted that March and April were good months, that the trade expected a poor July and August, but hoped for a good fall.

Col. Edgar Smalley, managing director of Edwin Butterworth & Co., Ltd., paper stock dealers, Manchester, England, who has been passing a few weeks on his annual visit to this country, making his headquarters at the office of E. Butterworth & Co., Inc., the American branch, has travelled about various sections of the market here. He says:

"Things look a little better. There are some rising prices and we have booked a fair amount of business, which has been better than the last two years. Papermakers are afraid the NRA decision will hurt. The dealers seem to think that the demand will be better. In England, the papermakers, wholesale stationers and rag packers are jointly endeavoring to increase the sale of good rag papers by organizing competitions and giving prizes for window displays of good rag paper by the retailer. This propaganda appears to be showing good results. This method seems to reach the individual buyer better than newspaper advertising. Could not such a scheme be started in the U. S. A.?"

During the week under review, under old papers, mixed papers continued steady at the same levels, .17½ @ .20, and old newspapers at .25 @ .27½. There was less demand for solid ledger books, which declined to 1.40 @ 1.50 from 1.60, and for mixed ledgers, which went down to .85 @ .90 from .90 @ 1.00. There was, however, more call for manila envelope cuttings, this grade rising to 1.30 @ 1.40 from 1.25 @ 1.30. Taken, by and large, the waste paper market was firm.

In bagging, increased demand developed for jute rope, the value appreciating to 1.50 @ 1.60 from 1.40 @ 1.50. Foreign gunny No. 1 went off a number of points from the maximum side of the range of 1.70 @ 1.75 to a flat 1.70, and paper mill bagging declined to a flat 1.10 from 1.15 @ 1.25, while Australian wool pouches went up to 2.50 @ 2.75 from 2.00 @ 2.25. In new domestic rags, cotton cuttings showed a little more activity. Under shirt cuttings, silesias No. 1 advanced to .04¼ from .04, soft unbleached to .06¼ @ .06½ from .05½ @ .05¾, and fancy to .0195 @ .021 from .0185 @ .0195.

In old domestic rags, there is every indication that roofing stock business is getting better, especially in the No. 1 and No. 2 grades with an improvement in the building industry. No. 1 grade is quoted at 1.20 @ 1.25, No. 2 at .95 @ 1.20, and No. 3 at .65. Canvas white No. 1 repacked, declined to 2.75 from 3.00 and white No. 2, repacked, to 1.90 @ 2.00 from 2.00 @ 2.75.

There was considerable buying of dark cottons, under foreign rags, with a consequent advance on the high side of the range, making the quotation 1.25 @ 1.40, compared with the former one of 1.25 @ 1.30. Old linsey garments declined to a flat 1.95 from a range of 1.95 @ 2.00.

### News of the Trade

The entire staff of the Storrs & Bement Company is to enjoy an outing at Warwick Inn and Nantasket next Saturday. Games, dinner and dancing are included in the program. The party will comprise approximately 100, including the branch offices at New Haven, Hartford and Providence.

Arthur W. Blackman, president of D. F. Munroe Company and past-president of the Boston Rotary Club, accompanied by Mrs. Blackman, left Boston Saturday, sailing from New York Sunday evening, for Mexico City to attend a meeting of the International Rotary Clubs. Mr. and Mrs. Blackman expect to be away about three weeks.

Carter Rice & Co. Corp., are distributing the first piece of the new series of Oxford mailings, entitled "Action," in connection with an advertising campaign of the Oxford Paper Company, Rumford, Me. It is printed on Mainefold in broadside form, discusses the use of a broadside as used in direct mail advertising, and bases this use on fundamental principles that have been generally tried and accepted by advertisers. Attached to the front of this piece is a little slip printed on Oxford Antique, which serves as an introduction of the series to follow.

Knight, Allen & Clark, Inc., will close their offices on Saturday during July and August.

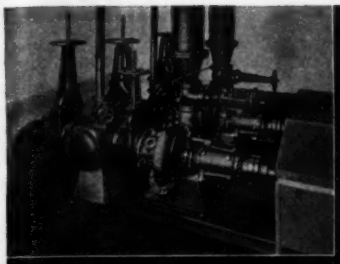
The Paper Supply Company, Inc., has been incorporated with a capital stock of fifteen shares of no par value. Incorporators are John Patturelli, president; Frances I. Rosenbloom, 97 Stearns street, Brookline, treasurer, and Melvin A. Rosenbloom.

## To Buy Equipment for New Rogers Mill

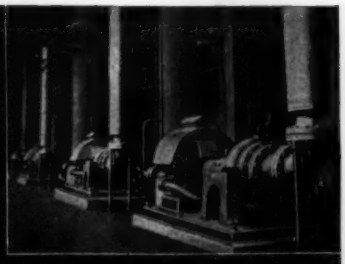
SPRINGFIELD, Mass., June 10, 1935—The Rogers Paper Manufacturing Company, Inc., of Manchester, Conn., will install new motors, drives and other equipment in the plant it has acquired in Danielson, Conn., from the Goodyear Tire and Rubber Company. This plant has a hydro-electric system that will be adequate for the needs of the new proprietor. McClintock & Craig of this city are the engineers on this job. The mill is situated in the village of Goodyear, on the Quinebaug River. Besides a four-story stone mill building there is a four-story concrete warehouse. The mill was started in 1827 and has been devoted to textile operations through the years.

The Rogers Paper Manufacturing Company was established in 1832 and has specialized in the manufacture of press board and produces extensively for the electrical industries. A year and a half ago the Rogers concern leased the former plant of Crane & Co., Inc., in Westfield, and occupied it for a year for experimental operations. Its proposed purchase of the plant failed to materialize.

# Through a Modern Paper Mill with Allis-Chalmers . . .

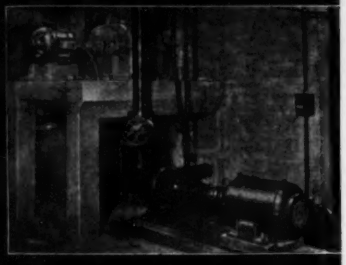


12" x 10" SSOR Stock Pumps handling stock from blow pits to storage chests.

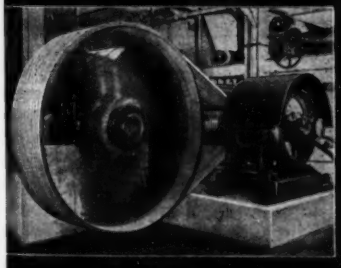


8" x 6" SSA Acid Circulating Pumps handling sulphite cooking acid.

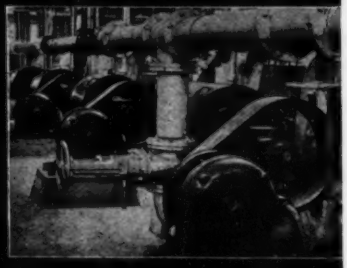
450 hp Synchronous Motors driving Jordans in Southern Paper Mill.



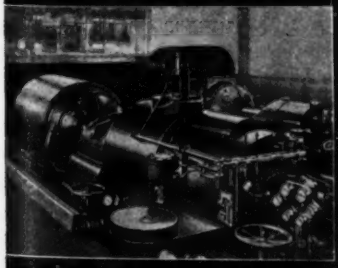
Standard Squirrel Cage; Enclosed Fan-cooled Type Motors.



150 hp Allis-Chalmers Motor and Texrope Drive operating beater.



Allis-Chalmers Motors and Texrope Drives operating stock screens.



Allis-Chalmers Automatic Extraction Steam Turbine Unit in a Paper Mill.

Allis-Chalmers Rod Mills preparing pulp stock in Southern Paper Mill.

**Pumps** Type SSOR pumps were especially designed for pumping paper stock. Because of their sturdy, balanced construction and high efficiency, they have lowered pumping costs. Other Allis-Chalmers paper mill pumps include the Type SSA for handling digester acids, Type S for general water supply, Type SSU close-coupled motor-pump units and Type M multi-stage pumps.

**Motors** Allis-Chalmers builds motors for every type of paper mill drive above 1 hp. This includes not only standard induction, synchronous and direct current motors, but motors with electrical and mechanical modifications to suit the drive, such as fan-cooled, splash-proof and drip-proof types. The larger motors include those for operating grinders and direct current paper machine drives.

**Drives** Texrope Drives are used in every part of the paper and pulp mill, operating beaters, rod mills, screens, jordans, calenders, pumps, chippers, barkers, and other machines. Texropes are the ideal paper mill drives as they are unaffected by moisture; starting and acceleration are smooth; and they require no belt dressing, greasing or oiling. Texrope Drives help maintain steady production through steady performance.

**Other Machinery** Allis-Chalmers also builds other machinery for paper mills such as rod mills for the preparation of pulp, Thorne barkers, perforated metal, vibrating screens for wood chips, rotary lime kilns, and rotary compressors and vacuum pumps. Power plant equipment includes steam and hydraulic turbines, condensers, generators, switchboards, generator voltage regulators, and auxiliaries.

# ALLIS-CHALMERS

— Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, U.S.A. —

# Chicago Paper Market Displays Steady Tone

## Demand for Various Grades of Fine Paper Fairly Persistent, Especially for Bonds and Ledgers —Kraft Paper Section Firm Despite Lessened Request—Ground Wood and Newsprint Papers Show Some Improvement—Paper Board Section Little Changed

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 10, 1935—With an eye toward the New York meetings, Chicago paper executives are doing everything within their power to maintain pre-code abandonment conditions in this area. So far the results have been excellent and the Chicago market was characterized as steady with "little or no shaky spots." This included some grades of paper which were "shaky" under the code and creates the impression that the markets will behave very satisfactorily.

Included in the specific grades was a fair report from fine papers, particularly sulphite bonds, with the entire bond and ledger market doing comparatively well. Books and covers retained their position in a satisfactory manner. Kraft papers have been holding firm despite a somewhat lessened demand. Groundwoods had an improved week and the general tone in both this and the newsprint market was reported favorable over previous statements of conditions. Board was continuing on the same basis, with its association making a diligent fight to retain these improved conditions. The waste paper market was little changed with the best demand noted in the higher grades.

One of the most widely experienced commentators locally, has the following to say about conditions now that the Code has been overthrown by the Supreme Court decision: "It is my opinion that prices will not tumble backward and that manufacturers and all employers of the right sort will strive to retain present conditions. There will always be the chiseler. There was under the Codes and there will be now. The big step forward is in the desire of the individual paper executive to make a more stringent effort to behave from the standpoint of being put 'on his honor' than there is for him to follow the highest trade practices with a stiff penalty for violation back of him. It is the old philosophy of the boy being disciplined more effectively when put on his honor than when he is sternly told that he must not commit some grievance."

### Code Office To Be Closed

The Supreme Court decision in relation to the Code means the closing of the Chicago offices of the Middle West Division, Code Authority, according to announcements made here. The Washington order is to the effect that local business shall be wound up and the office closed by June 15. Joe Pirie, code director, is reported to have not yet announced his plans though he will probably return to the paper industry wherein he has had a great deal of sales experience.

### Association Activities

The Middle West Division of the Salesmen's Association of the Paper Industry will hold its second golf outing of the season at the Skokie Country Club on Friday, June 21. Ben Babbitt, golf chairman, hopes to increase the attendance over that of the initial outing—which, incidentally, set a record attendance for these salesmen's meetings. The regular Monday meeting on June 3 was given over to a discussion of the various markets, particularly in relation to their behavior following the code announcement. Expressed opinion indicated that the salesmen's association plans to do all within its power to retain present standards.

The association is making plans for the Chicago appearance of C. W. Boyce, executive secretary of the American Pulp and Paper Association and of W. W. Pickard, coordinator of the paper industry. The association expects them in the near future and intends to assist in assembling all mill representatives to hear these executives discuss present conditions in the paper industry.

### News of the Industry

The Cromwell Paper Company, 4800 South Whipple street, has recently completed plans for a third addition, with a new $100,000 one-story addition to be erected to take care of continued increases in business for the manufacture of tympan papers, waterproof papers, and paper bags. The enlarged facilities will give the company a total of 30,000 square feet of floor space, the triple expansion all taking place within a comparatively few years. Joseph Weil is the president of the Cromwell organization.

Fire damages to the office and warehouse building of the Crane Paper Stock Company is to be replaced immediately with the announcement that the company will spend $25,000 to repair the damage and loss incurred.

The convention report of the Chicago Association of Commerce lists an important meeting of the National Paper Box Association to be held at the Drake Hotel in Chicago, June 23 to June 26. Arrangements for the convention are being made by Howard P. Beckett, of Philadelphia.

The Ideal Wrapping Paper Products Company has moved to larger quarters at 2815 Irving Park Boulevard, the new accommodations being one story in arrangement and providing the concern with 15,000 square feet of floor space. Louis Marcus is the president of the company.

Harold Knott, Eastern Manufacturing Company, returned to Chicago on June 1 after an extended tour of the Pacific Coast, which included business visits to most of the important cities along the west coast.

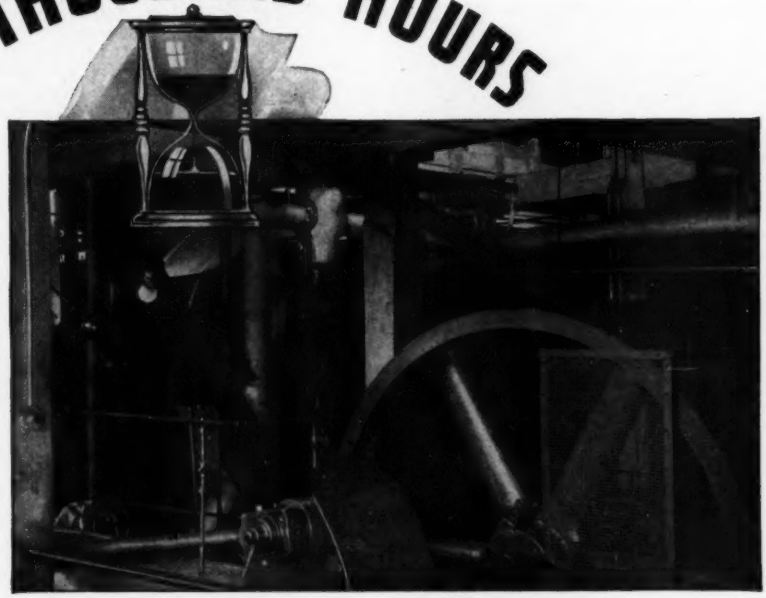
George Bond, sales representative of the International Paper Company, is the proud father of twin baby girls born on June 2.

The Wrapping Tissue Association will hold an all day session at the Stevens Hotel, Chicago, on Thursday, June 13. Important matters in relation to the code situation are expected to be discussed.

## Quick Delivery of Bread Wrappers

FALL RIVER, Mass., June 10, 1935—A very quick delivery of bread wrappers, considering the distance, took place from the Holyoke Card and Paper Company, Springfield, Mass., one day last week. Gus Le Compte, proprietor of the Gold Medal Baking Company, this city, needed three rolls of bread wrappers in a hurry. His son, Roland, went to the Providence, R. I., airport, and hopped off in his plane for the Springfield airport. From there he communicated with the Holyoke Card and Paper Company, from whose plant the bread wrappers were delivered to him. He flew back, making the entire round trip in an hour and 42 minutes.

# More than 70 THOUSAND HOURS



# —and still going strong!

**After more than fifteen years of service in the John A. Manning Paper Company mill, Troy, N. Y., this 20 in. 6-ply U. S. Rainbow Friction Surface Transmission Belt still is *on the job*, hour after hour, day after day, month after month.**

**President Woodrow Wilson was still in the White House when this belt was installed. Since then it's been running from twelve to twenty-four hours a day, four to five days each week—more than 70 thousand hours of service on a Knowlsen Kelly Corliss 75 H. P. engine—86 R. P. M., drive pulley, 8 ft. diameter, driven pulley 4 ft.**

**Today, according to the plant superintendent and to Mr. J. M. Foy, M. M., this U. S. Rainbow Belt is in splendid condition.**

**Here's an enviable service record which is, after all, only indicative of the superior quality *built into* all U. S. Belts, the measure of performance that industry can expect to *get out* of any belt sold under the "U. S." Trade Mark. For particulars address nearest branch of United States Rubber Products, Inc., 1790 Broadway, New York City.**

UNITED STATES RUBBER COMPANY · US · TRADE MARK

United States Rubber Company

# Canadian Wholesale Paper Merchants Convene

## Encouraging Reports Presented Regarding Operations of Past Year—General Paper Business Increased Slightly Over Preceding Year—Future Outlook Considered Promising—Standard Accounting Plan Recommended—Officers Elected for Coming Year

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 10, 1935—At the annual meeting of the Canadian Wholesale Paper Dealers Association, which was held recently in the Windsor Hotel, Montreal, there was a representative attendance and encouraging reports were presented on the operations of the past year. T. J. Havill, of the Havill Paper Company, Montreal, president, presided over the two days' gathering which was devoted solely to business with the exception of one afternoon when there was a lively golf match at Islesmere Golf Club between the paper merchants and the paper manufacturers, for a silver trophy which was donated some years ago by the latter for annual competition. The merchants were successful in carrying off the honors, and about thirty players took part in the contest.

The following officers were elected for the coming year: Honorable President, C. H. McFarlane (McFarlane, Son and Hodgson) Montreal; President, A. M. Barkwell, (Barkwell Paper Company) Winnipeg, Man.; Vice President, E. H. Ellis (Barber-Ellis Company) Toronto; Treasurer, T. J. Macabe (Buntin, Reid Company) Toronto; Secretary, Ivan Moffatt, Toronto; Honorary Secretary, N. L. Martin, Toronto.

The reports covering the past year of the various divisions were presented and, on the whole, showed a slight increase in general business over the year previous. There was a note of confidence expressed in the gradual recovery that is taking place in the distribution branch of the paper trade and opinion was voiced that the ground which has been gained, would not be lost and that the future could be measured by a fair degree of confidence while things were on the mend and headed in the right direction.

C. J. Kay, of Vancouver, reported for the province of British Columbia; A. M. Barkwell, of Winnipeg, for the Prairie Provinces; B. G. Robertson, of Hamilton, for the provinces of Ontario and Quebec; and W. M. Lundy, of St. John, N. B., for the Maritime provinces.

A special committee recommended the adoption of a standard plan of accounting for wholesale paper houses in Canada following closely the plan laid down by the National Paper Trade Association of the United States.

The report of the Committee on the Simplification of Stock Lines was presented by E. T. Reynolds, of Montreal, while R. I. Finlay, Toronto, reported for the Mills Relations Committee and J. B. Brown, Montreal, for the Trade Survey Committee. It was announced that the Coast Paper Company, Vancouver, has recently joined the association. On the whole, the convention was a decided success. The usual banquet was not held this year, the golf tourney taking its place.

### News of the Industry

The Hon. J. S. McDiarmid, Minister of Lands and Mines for the Province of Manitoba, is carrying on negotiations with the Abitibi Power and Paper Company, Toronto, for the reopening of the newsprint plant of the Manitoba Paper Company, a subsidiary of the Abitibi Company, at Pine Falls, Man. The negotiations are a sequence of the announcement made last fall in the Manitoba Legislature that the plant would again be put in operation. The Hon. John Bracken, Premier of Manitoba, stated that as the mill had been closed for three years, the Manitoba government considered the province would be unfairly treated if the Abitibi Company permitted it to be idle much longer.

George E. Dulong, for many years associated with the Appleford Paper Products, Ltd., Hamilton, Ont., passed away on June 2 after a long illness. He was widely known in the paper trade and is survived by one son and three daughters.

The annual convention of the Canadian Paper Box Manufacturers Association will be held at the Seigniory Club, Lucerne, Que., on June 24 and 25. One of the speakers at the gathering will be A. R. Walmsley, of the Miehle Corporation, who will take as his subject "Modern Production Methods."

At the recent exhibition of Produced-in-Canada products held in the Armouries, Hamilton, Ont., an interesting and attractive display was made by the Rolland Paper Company, Toronto and Montreal.

The Spruce Falls Power and Paper Company, Kapuskasing, Ont., of which E. S. Noble is general manager, are operating three of their four machines and turning out on an average 360 tons of newsprint daily. This marks a material increase over the production of last year. This season about 180,000 cords of pulpwood were cut and purchased by the company over half of which was harvested in their own camps, the remainder being bought from settlers.

A second story has been added to the finishing room of the Don Valley Paper Company, Ltd., Toronto, in order to meet the constantly growing demand for the various specialty lines turned out by the company.

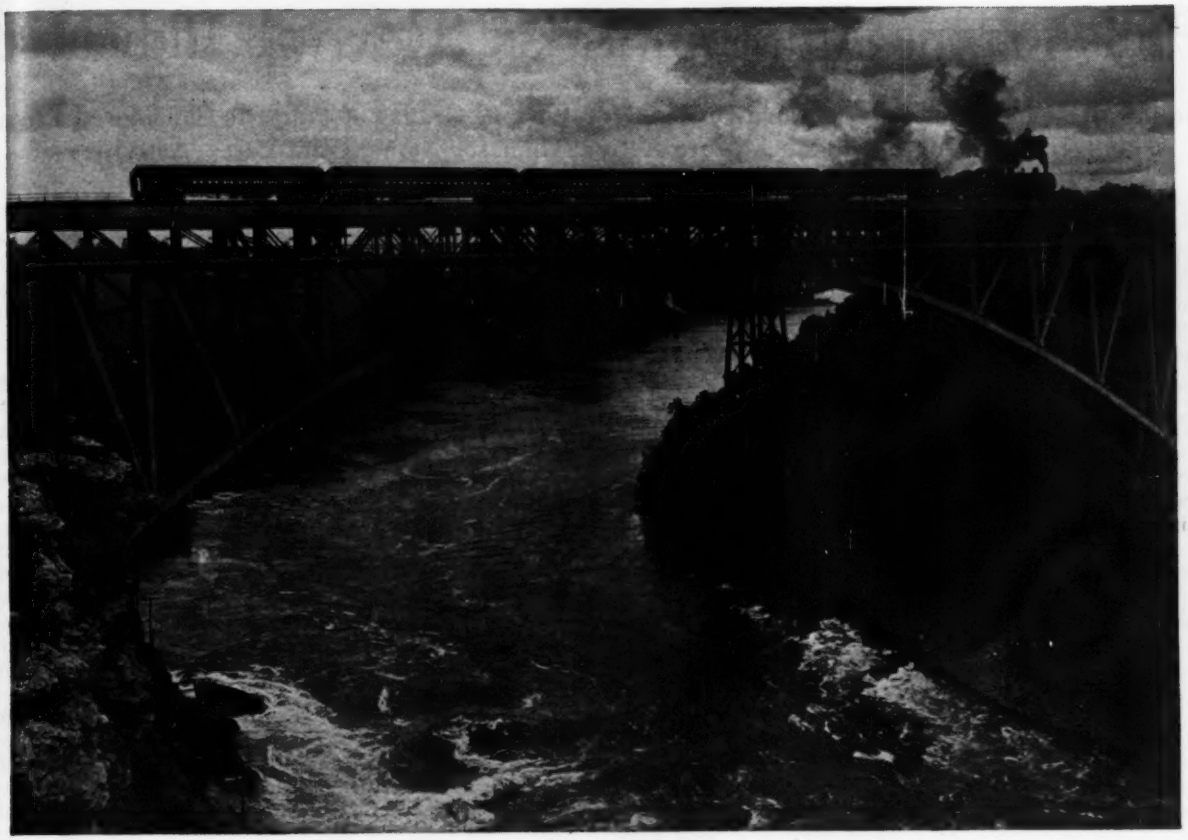
Laminated Papers, Montreal, has just been granted a charter to process paper of all kinds and descriptions and to buy, sell and deal in paper in all its forms. Among the provisional incorporators are H. E. Herschorn, and W. A. Gardner, both of Montreal.

C. J. Booth, president of J. R. Booth, Ltd., Ottawa, manufacturers of lumber, pulp and newsprint, accompanied by his wife and son, E. R. Booth, has been on an extended trip to the Pacific Coast. The Booth mills at Ottawa were established in 1857 and are generally recognized as one of the outstanding landmarks of the East.

Many pulpwood drives in the northern part of Ontario have been held up by a shortage of water. The rainfall, which was two inches below normal, made the work difficult. The Abitibi Power and Paper Company has practically completed its drives on the Agawa and Michipcoten rivers without running into any serious difficulty but other concerns have not been so fortunate in driving pulpwood down the streams.

A. Hoyt Thompson, who for several years was associated with the late V. T. Haney, Toronto, as Ontario sales manager of the Rolland Paper Company, Montreal, has been appointed successor to Mr. Haney. Mr. Thompson is well known to the trade and is receiving the congratulations of many friends on his well deserved promotion.

Fine Papers, Ltd., has opened a warehouse in London, Ont., with Fred Halls, Jr., as manager. Mr. Halls was for several years in charge of the London branch of the Fred W. Halls Paper Company, Toronto.



# WHAT A SPLASH...

## *without perfect balance*

**Correct distribution of weight is vital for the safe construction of this cantilever bridge. In paper-making, as in bridge-building, proper weight distribution is essential.**

BUILDING a cantilever bridge is a ticklish job. To mount the arms requires perfect balance. Incorrect distribution of weight would send the whole arm—tons of steel—plunging down into the water.

Proper balance is a basic essential for successful, economical paper-making as well as for sound bridge-building. Uneven distribution of pressroll weights not only adds to production costs, but cuts down paper quality. Such lack of balance reduces the life of felt. It increases steam costs by necessitating the removal of water at the dryers. There is only one way to be *sure* of the correct pressures, and that is by eliminating guesswork in adjusting weights.

The Taylor Pressroll Load Recorder does this. It gives you an accurate chart record of pressures at both ends of the press. And in so doing, here's what it accomplishes:

1. Does away with uneven frictional wear. RESULT: Reduction of felt costs per ton from 5 to 10 per cent.
2. Removes water at the presses instead of at the dryers. RESULT: Reduction of steam costs per ton.
3. Eliminates over-dried and under-dried edges and a cockled or grainy sheet. RESULT: Maintenance of uniform paper quality.
4. Assures production of paper exactly according to specifications for finish, bulk, density, opacity, and other characteristics. RESULT: Better satisfied customers and continued profits.

Mill executives who have installed Taylor Pressroll Load Recorders find that, on the average, they pay for themselves in savings within a few months. In the short time that they have been on the market, reports have come from mills all over the United States and Canada regarding the accuracy, durability and economy of these Recorders. Get full information on the qualities of this new instrument for yourself. Write the Taylor Instrument Companies, Rochester, N.Y., U. S. A., or Toronto, Canada. Manufacturers in England—Short & Mason, Ltd., London.

Taylor

Indicating Recording · Controlling

**TEMPERATURE, PRESSURE** *and* **FLOW INSTRUMENTS**

# Philadelphia Paper Market Revival Indicated

## Despite Rescinding of NRA Future Outlook for Various Grades of Paper Is Considered Promising—Demand for Paper Stock More Active Than for Some Time Past—Activities of Paper Trade Association of Great Importance to the Industry

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 10, 1935—As stated in these columns last week the effects of the rescinding of the NRA will be more or less disturbing in the paper industry for the next few weeks, or at least until it is clear what countervailing measures will be attempted by the Administration. However, certain basic conditions indicate that a revival of at least seasonal proportions will be experienced later in the year.

There seems to be better demand than there has been for some time for all grades of waste paper, and if this continues those in the waste paper business here are sanguine of the fact that better prices will prevail.

### J. K. Javits Addresses Merchants

The following excerpts from an address made by J. K. Javits, counsel for the National Paper Trade Association, at the dinner of the Philadelphia Paper Trade Association, recently held at the Poor Richard Club are of utmost timeliness. Said Mr. Javits:

"The opportunities for the association, in my opinion are greater today than ever before. I believe that the Courts will be less restrictive of cooperative business activities in their interpretation of the Anti-Trust Laws in the future, even if there be no liberalized National and State Recovery Acts, than they ever have been before.

"The activities being undertaken by the association at present are of tremendous consequence to the members of the trade. Among the activities under consideration are a classification of manufacturers according to their marketing policies based upon actual information procured from manufacturers and checked as against experience of the trade in the field; compilation of accurate statistical information as to sales in past transactions by manufacturing groups so that definite ascertainment of the volume of any destructive price competition which may exist may be currently available both to manufacturers and paper merchants.

"Studies are also being made as to the feasibility of the standardization of distribution and fair trade practices by organized groups of manufacturers and the organized trade in the Association under agreements between manufacturers and merchants, which may possibly include differentials and provisions for labor, to be put before the Courts for declaratory adjudication as to their legality under the Anti-Trust Laws before any action thereunder is taken by any of the parties. This would constitute a tremendous step forward as it would answer the objections always made to experimental actions under Anti-Trust Laws, that the liability is incurred before business men can know whether their acts are legal."

Mr. Javits deprecated the necessity for apologies by the National Paper Trade Association or by the paper distributing trade of what it accomplished or failed to accomplish under Codes, and added—

"The paper distributing trade did a splendid job when compared with other trades and industries, and I believe it should be proud of its record in this 'war' on depression. Whether the war was right or not is a post-mortem. Such questions do not dull our admiration for veterans of other wars. They should not dull our admiration for the veterans of our own 'war.'

"Experience during the last two years has taught us a great deal, and it would be foolhardy to suppose that nothing remains of the code experiment. I have listed a number of the gains which I regard as permanent:

"1. A consciousness of trade solidarity among the members of the paper distributing trade. For the first time in business history the paper distributing trade spoke as one great economic group through the paper distributing trade Code Authority as its agency, an agency created by one representative force—The National Paper Trade Association. Every firm principally engaged in the paper distributing trade has been identified, practically all side-line merchants have been identified, the density in the Trade in various sections of the country, total volume by sections, and other vital trade statistics have been ascertained. The benefits of these things are incalculable. Their realization would have been impossible for years without the National Industrial Recovery Act.

"2. There has been a definite crystallization of those trade practices which the paper distributing trade needs and requires to be treated as unfair, and sufficient experimentation with some of them to determine their value or lack of value for the future. That a greater measure of trade cooperation than ever existed in American business history before will be permitted legally in the future is sure. Whether or not there is an NRA the experience gained with that type of regulation which is most effective to satisfy realistic trade requirements will influence profoundly the actions of the organized Trade in the future.

"3. Side-line merchants recognized through code activity that there existed an organized paper distributing trade, that that organized trade has certain standards of ethics and that it would fight hard to see that anyone engaged in the trade observed those ethics. Contacts have been made with side-line merchants, they have become known rather than unknown quantities. The extent to which their competition may be regularized and made more orderly will depend on the enterprise of the National Paper Trade Association, and the number and cooperation of its membership.

"4. Manufacturers themselves organized into groups under the pressure of code activity, have come to know that the paper distributing trade as a unit is alive, has certain needs and certain rightful demands and must be recognized as the determining factor in the establishment of marketing policies. The respect which committees of the National Paper Trade Association presenting the views of the trade to manufacturers receive, and the weight which the views of the organized trade, as expressed through its association and Code Authority, now carry is ample evidence of this condition.

"The whole trend of New Deal legislation would seem an effort by the working people of the country to secure for themselves a greater recognition in the avails of industry. Whether this is placed on the ground of restoring purchasing power or of participation in more profitable operation is relatively unimportant. To the mass of the people the result is the same."

# Production of Paper and Papermaking Machines in Use in 1934

The tonnage of paper and paperboard produced in the United States in 1934 showed practically no change as compared with 1933, according to a preliminary report released by William L. Austine, Bureau of the Census, Department of Commerce. The figures for two years are: 1934, 9,186,226 tons; 1933, 9,190,017 tons.

Table 1, below, gives detailed production statistics by kinds of paper and paperboard; table 2, production by States; and table 3, numbers and capacities of papermaking machines in use.

All figures for 1934 are preliminary and subject to revision.

TABLE 1

PAPER AND PAPERBOARD—PRODUCTION, BY KIND AND QUANTITY: 1934 AND 1933

[The schedule used in making the canvasses for the even-numbered years are less detailed than those for the odd-numbered years, and consquently some of the items in this table may not be strictly comparable as between the two years.]

| Kind | Tons (2,000 pounds) 1934 | 1933 |
|---|---|---|
| Aggregate | 9,186,226 | 9,190,017 |
| News print, standard | 989,705 | 928,332 |
| Hanging paper | 92,130 | 66,137 |
| Catalog paper | 62,108 | 62,954 |
| Book paper, uncoated | 1,055,247 | 1,080,196 |
| Cover paper | 17,011 | 12,697 |
| Writing paper, total | 414,542 | 478,356 |
| Rag content | 67,038 | 65,998 |
| Sulphite bond | 243,988 | 282,766 |
| Other chemical wood pulp | 103,516 | 129,592 |
| Wrapping paper, total | 1,357,438 | 1,440,029 |
| Sulphite | 247,985 | 267,487 |
| Kraft | 865,425 | 932,598 |
| Other | 244,028 | 239,944 |
| Tissue paper, total | 398,770 | 406,760 |
| Toilet | 190,577 | 202,861 |
| Towel | 51,250 | (1) |
| Other | 156,943 | 203,899 |
| Absorbent paper | 78,953 | 79,832 |
| Building paper | 327,866 | 328,275 |
| Other paper | 319,147 | 230,159 |
| Paperboard, total | 4,073,309 | 4,076,290 |
| Container board | 1,882,195 | 2,020,617 |
| Folding boxboard (bending) | 966,311 | 957,626 |
| Set-up boxboard (nonbending) | 590,801 | 571,898 |
| Building board | 67,908 | 58,048 |
| Binders' board | 21,125 | 26,429 |
| Cardboard | 84,404 | 71,667 |
| Leatherboard | 20,851 | 21,437 |
| Press board | 20,167 | 7,241 |
| Other boards | 419,547 | 341,327 |

[1] Not separately called for on schedule.

TABLE 2

PAPER AND PAPERBOARD—PRODUCTION, BY QUANTITY AND BY STATES: 1934 AND 1933

[Statistics are given for all States for which separate figures can be published without disclosing, exactly or approximately, data reported by individual establishments. Certain of the "Other States," however, reported larger quantities of paper and paperboard than some of the States shown separately.]

| State | Tons (2,000 pounds) 1934 | 1933 |
|---|---|---|
| United States | 9,186,226 | 9,190,017 |
| California | 169,709 | 167,033 |
| Connecticut | 146,643 | 156,676 |
| Delaware | 8,547 | (1) |
| Illinois | 418,940 | 437,242 |
| Indiana | 224,150 | 234,909 |
| Louisiana | 378,347 | 394,373 |
| Maine | 889,137 | 836,851 |
| Maryland | 108,544 | 104,980 |
| Massachusetts | 359,559 | 350,250 |
| Michigan | 893,241 | 892,903 |
| Minnesota | 230,687 | 232,702 |
| New Hampshire | 127,004 | 134,495 |
| New Jersey | 492,110 | 484,742 |
| New York | 977,062 | 993,197 |
| Ohio | 752,426 | 744,183 |
| Oregon | 220,684 | 197,970 |
| Pennsylvania | 596,959 | 611,164 |
| Tennessee | 82,077 | 86,686 |
| Vermont | 64,604 | 67,575 |
| Virginia | 306,777 | 311,350 |
| Washington | 418,115 | 381,997 |
| West Virginia | 36,110 | 46,331 |
| Wisconsin | 687,716 | 718,473 |
| Other States [2] | 597,078 | 603,935 |

[1] Included in "Other States" to avoid disclosing data for individual establishments.

[2] Alabama, Arkansas, District of Columbia, Florida, Georgia, Iowa, Kansas, Mississippi, Missouri, North Carolina, Rhode Island, South Carolina, and Texas, for both years; in addition, Colorado and Delaware for 1933.

TABLE 3

PAPER MACHINES, BY TYPE, NUMBER, AND CAPACITY, BY KIND OF PAPER MADE: 1934

| Kind | Total capacity per year of 310 days, tons (2,000 lbs.) | Fourdrinier Number | Fourdrinier Capacity per 24 hours, tons (2,000 lbs.) | Cylinder Number | Cylinder Capacity per 24 hours, tons (2,000 lbs.) |
|---|---|---|---|---|---|
| Total: 1934 | 13,889,550 | 881 | 23,693 | 678 | 21,112 |
| 1932 [1] | 13,728,040 | 915 | 23,280 | 694 | 21,004 |
| By kind of paper, 1934 | | | | | |
| News print and similar papers, total | 1,478,080 | 91 | 4,768 | ... | ..... |
| News print | 1,237,830 | 66 | 3,993 | ... | ..... |
| Similar papers [2] | 240,250 | 25 | 775 | ... | ..... |
| Book paper | 1,790,250 | 216 | 5,696 | 4 | 79 |
| Cover paper | 48,670 | 16 | 157 | ... | ..... |
| Writing paper | 709,280 | 142 | 2,276 | 1 | 12 |
| Wrapping paper | 2,007,560 | 189 | 6,003 | 50 | 473 |
| Tissue paper | 529,790 | 110 | 1,285 | 82 | 424 |
| Absorbent paper | 149,110 | 37 | 435 | 22 | 46 |
| Building paper | 735,940 | 2 | 140 | 67 | 2,234 |
| Other paper | 479,260 | 54 | 1,318 | 13 | 228 |
| Board | 5,961,610 | 24 | 1,615 | 439 | 17,616 |

[1] No data on paper machines in use in 1933 were collected.

[2] Catalog, hanging, poster, novel, news-tablet, lining, etc. Data for the production of these classes of paper are included in "Other paper" item, Table 1.

## To Take Title to Oswegatchie Mill

GOUVERNEUR, N. Y., June 10, 1935—Arrangements by the Wyoming Valley Paper Company, of Northumberland, N. H., for taking title to the property and water power rights of the Oswegatchie Paper Company will probably be completed here this week. A meeting between officials of the company and the bondholders protective committee of the defunct concern is scheduled and only a few legal formalities remain before consummation of the sale. With the final articles signed the new owners will arrange for plant renovations which will require several weeks for completion. It is understood that the paper machine will be overhauled by the Bagley & Sewall Company, Chamber of Commerce officials here have also offered to furnish aid in rebuilding the railroad spur leading from this city to the mill in order that the new owners may be supplied with adequate transportation service on incoming and outgoing freight.

Operations by the new owners are expected to be started late in September on a product for which there is a ready market. Plans call for employment of about 200 men and it is reported that the company has taken a lease of an old lace manufacturing plant as a warehouse for surplus products. Consideration is now being given to the question whether or not the mill will be operated under the old name or use the name Wyoming Valley Paper Company, which is said to be a subsidiary of the Rushmore Paper Company, of New York City.

# Obituary

### John N. Harvey

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 10, 1935—John N. Harvey, aged 56, general manager and vice-president of the Advance Bag and Paper Company, Inc., of Boston, died June 2 at Jacksonville, Fla. Mr. Harvey was a former tax commissioner of Vermont. He had lived at 215 Temple street, Newton, Mass., for the last eleven years.

Mr. Harvey became ill while attending a convention of the Jacksonville Paper Company. He was born in West Topsham, Vt., a son of Attorney Rooney Moses Harvey, well known Vermont lawyer. He was tax commissioner of Vermont for several years before widening activities in the paper business forced him to relinquish the office. He was an owner of paper mills at Howland, Me., Middletown, Ohio, and Hodge, La., concerns of the Advance Bag and Paper Company.

Under the NRA he was chairman of the Bag Manufacturers Code and a member of the Kraft Institute, the Code Authority for the Kraft Manufacturers Association.

His widow, Juliette Archambeault Harvey, and five daughters, Juliette, Julia, Jean, Rejane and Raymonde are living, besides a brother, Erwin Harvey, of Montpelier, Vt.

### Peter Benninghofen

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, June 10, 1935—Peter Benninghofen, 75 years old, one of the best-known business men in the Miami Valley, who had a wide acquaintance in the paper and allied trades, died Wednesday afternoon, May 29 last at his country home, south of Symmes Corner, Butler County. He was a member of the firm of Shuler & Benninghofen (Hamilton Felt Mills) which did an enormous business with paper manufacturers in this and other countries.

Mr. Benninghofen was a native of Hamilton, having been born September 29, 1860, the son of the late John W. and Wilhelmina Benninghofen. His father was one of the founders, with the late Asa Shuler, of the firm of Shuler & Benninghofen, manufacturers of woolens, blankets and felts. He was educated in the public schools of Hamilton and was graduated from the public high school in 1877.

Although he became interested in a number of other enterprises, he never permitted his connection therewith to interfere with his activities with the firm of Shuler & Benninghofen. He it was who always took a firm stand on matters of policy leading to the complete development of the industry in which he was keenly interested. Together with his associates he decided upon improvements in mill structure and equipment, always keeping the plant up to the highest point of efficiency in this respect. Surrounded by a loyal staff the owners of the company found it an easy task to more than keep abreast of the industrial procession.

In a civic and philanthropic way, Mr. Benninghofen was outstanding in his community. He did much constructive work for the Hamilton Y. M. C. A. and contributed liberally to its support. He was especially interested in the Community Home for Aged, on Dayton street, towards the establishment of which he contributed generously. When the campaign for the erection of the Fort Hamilton Hospital was started several years ago, Mr. Benninghofen was one of its most enthusiastic supporters. He gave unstintedly to the institution and was eleced a member of the first Board of Directors of that institution.

Mr. Benninghofen never married but made his home with his sisters, to whom he was a devoted brother and companion, finding enjoyment in the quiet of his home. From early boyhood he was a member of the Zion Lutheran church.

Surviving members of his family are two sisters, Carrie and Pauline, and one brother, Christian Benninghofen.

### Stephen Caplin

Stephen Caplin, founder of the Union Card and Paper Company, died suddenly in Paris June 3, according to word received here. He was 74 years old.

Born in Russia, Mr. Caplin came to this country as a youth. Early in life he entered the fine-paper business and was one of the pioneers in the industry in New York. He was a collector of bookplates, and his collection is considered to be one of the best in the country.

Mr. Caplin lived for a number of years at 825 East Seventeenth street and recently had gone to France on a visit.

He had been active with the Hebrew Educational Society of New York and was a member of the Bibliophile Society of Boston.

Two daughters, Mrs. Stella L. Bloom and Miss May F. Caplin survive.

### John Adams

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 10, 1935—John Adams, superintendent of the Whiting-Plover Paper Company, Stevens Point, Wis., died June 3 at St. Michael's Hospital of that city, after an illness of two weeks. He was 55 years old.

Mr. Adams was a native of Poland, coming to this country at the age of four years. He has resided in or near Stevens Point all his life. He began working for the Whiting-Plover Company about twenty years ago, and was a foreman of the machine room before his promotion to superintendent.

He is survived by his widow and five children. Burial took place at Plover, Wis.

## Death of NRA Blow to Paper Industry

FELTS MILLS, N. Y., June 10, 1935—The death of the NRA was a blow to the paper industry generally, according to J. Victor Baron, of the Sherman Paper Company, who feels that the code was the greatest thing that ever happened to the industry. He declared that he was sorry to see the Supreme Court wipe it out but that paper manufacturers plan to continue under NRA policies until Congress does something in connection with it. Paper mills will keep their employes under NRA conditions even though the national recovery organization is extinct, he said. "We plan also to keep the same hour scales and continue operating under the price-fixing provisions of our code while the code of fair competition, invalid as a federal regulation, will also be observed," said Mr. Baron.

## Hano Paper Corp. In Larger Quarters

The Hano Paper Corporation, Phillip L. Hano, president, is taking larger quarters in Long Island City, where 30,000 square feet were rented from the James Butler Grocery Company in its warehouse at School Street and Nelson Avenue. The paper concern expanded in a move from Brooklyn two years ago. Its present quarters have been leased to the Atlantic Container Corporation.

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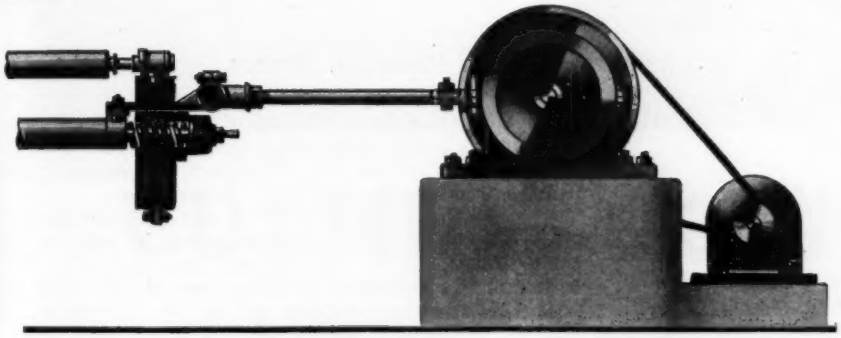
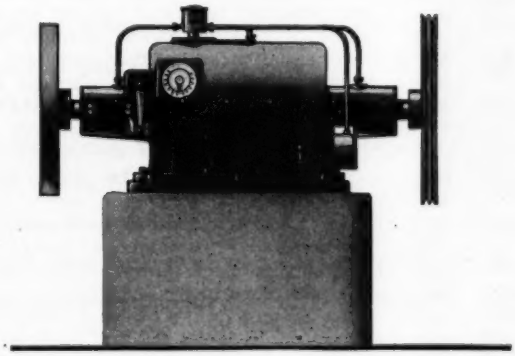
# FORMATION CONTROL

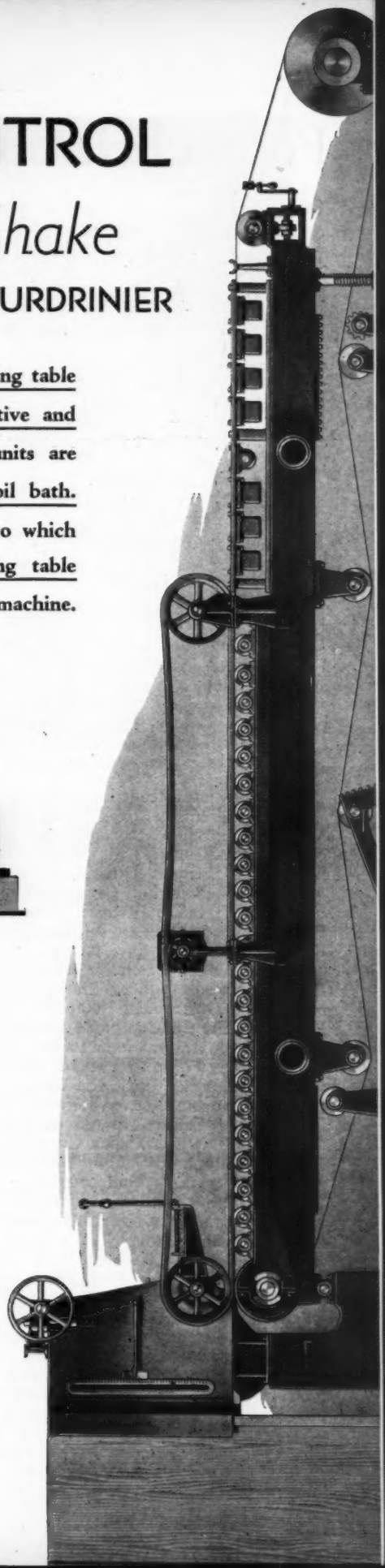
## *with* New Simplex Shake

## —*and* FOURDRINIER

The shaking movement is delivered directly to the forming table —no rocker arms, shafting or bearings to wear. Positive and easily adjustable for both speed and throw. Shake units are totally enclosed and all parts operate in continuous oil bath. While specially designed for the Simplex Fourdrinier, to which the shake movement is delivered only to the forming table (stationary framework) this shake can be applied to any machine.







A REAL COMBINATION TO MEET QUALITY REQUIREMENTS. A REQUEST FOR OUR REPRESENTATIVE TO CALL IS INVITED.

# The Bagley & Sewall Co.

WATERTOWN NEW YORK

TAPPI FALL MEETING
Philadelphia—Atlantic City
Sept. 18-21

# Form Provisional New York Section of TAPPI

The first regular meeting of a Provisional New York State Section of TAPPI was held on Friday evening, June 7, at the Hotel Syracuse in Syracuse, N. Y. The speaker of the evening was Dr. Johnston of the Forest Products Laboratories of Canada.

### Election of Officers

Before the regular meeting a nominating committee composed of F. Casciani, A. Fairbrother, E. G. Ham, P. Hamer, M. W. Hedden, R. Huntley, E. W. Gutliph, J. Rich, met and nominated candidates for the offices of the club. An election was held at the meeting and the following were elected:

Chairman—John Schuber.

Vice-Chairman—Professor C. E. Libby.

Secretary-Treasurer—E. P. McGinn.

Executive Committee: Messrs. F. Casciani, A. Fairbrother, E. G. Ham, P. Hamer, M. W. Hedden, R. Huntley, E. W. Gutliph, J. Rich.

### Meetings Scheduled

It was decided to hold meetings in October, December, February, April and June; the June meeting being the annual meeting.

The next meeting will be held in October. The time and place has not, as yet, been definitely decided.

### Those in Attendance

The following attended this dinner meeting:

Carl Apelgren, St. Regis Paper Company, Deferiet, N. Y.; Albert L. Ball, Carborundum Company, Niagara Falls, N. Y.; J. D. Bennett, Dilts Machine Works, Inc., Fulton, N. Y.; W. J Bennett, Dilts Machine Works, Inc., Fulton, N. Y.; F. W. Bonacker, Carborundum Company, Niagara Falls, N. Y.; James Brennan, Dexter Sulphite Pulp and Paper Company, Dexter, N. Y.; Ferri Casciani, Electro Bleaching Gas Company, Niagara Falls, N. Y.; E. W. Clarke, Knowlton Brothers, Watertown, N. Y.; Hilliard D. Cook, Sweet Brothers, Phoenix, N. Y.; K. P. Coachman, Taylor Instrument Company, Rochester, N. Y.; R. F. Engelhartt, Oswego Falls Company, Fulton, N. Y.; Sven Fahlgren, International Paper Company, North Tonawanda, N. Y.; Philip Freneau, C. Roll Reynolds Company, Inc., New York City; K. Darby Gallinger, Taggart Brothers Company, Inc., Watertown, N. Y.; C. Ives Gehring, Oswego Falls Corporation, Fulton, N. Y.; F. C. Goodwill, St. Regis Paper Company, Deferiet, N. Y.; Earl W. Gutliph, Bloomer Brothers Company, Newark, N. Y.; Malcolm B. Hall, Foxboro Company, Foxboro, Mass.; Arthur C. Hayes, International Paper Company, North Tonawanda, N. Y.; E. G. Ham, John A. Manning Paper Company, Troy, N. Y.; Gerald G. Hill, Bloomer Brothers Company, Newark, N. Y.; W. O. Hisey, New York State College of Forestry, Syracuse, N. Y.; R. F. Huntley, Oswego Falls Corporation, Fulton, N. Y.; F. R. Hyatt, Johns-Manville, Oswego, N. Y.; C. R. Kingston, Taylor Instrument Company, Rochester, N. Y.; Charles M. Koon, Champion Fibre Company, Canton, N. C.; Louis Korte, Dexter Sulfite Pulp and Paper Company, Dexter, N. Y.; Oliver F. Lane, Krebs Pigment and Color Corporation, New York City; C. E. Libby, New York State College of Forestry, Syracuse, N. Y.; E. P. McGinn, St. Regis Paper Company, Deferiet, N. Y.; Darwin Miscall, A. P. W. Paper Company, Albany, N. Y.; W. B. Morehouse, Lawless Brothers, E. Rochester, N. Y.; Richard J. Murtaugh, St. Regis Paper Company, Deferiet, N. Y.; W. J. O'Brien, O'Brien Steam Specialty Company, Syracuse, N. Y.; G. E. Osterheldt, Krebs Pigment and Color Company, New York City; F. C. Peterson, New York State College of Forestry, Syracuse, N. Y.; C. H. Plantz, St. Regis Paper Company, Deferiet, N. Y.; G. P. Prather, Dilts Machine Works, Fulton, N. Y.; John H. Rich, Foster Paper Company, Utica, New York; Mr. Rugren, Victoria Paper Mills Company, Inc., Fulton, N. Y.; Fred Schorken, St. Regis Paper Company, Norfolk, N. Y.; J. Schuber, St. Regis Paper Company, Deferiet, N. Y.; A. W. Shanfelter, Northern Lubricating Company, Watertown, N. Y.; P. D. Switzer, Heller & Merz, New York City; James M. Turner, Taggart Brothers, Watertown, N. Y.; Dexter B. Williams, Williams Apparatus Company, Watertown, N. Y.; D. R. G. Williams, Foxboro Company, Troy, New York; F. M. Williams, Williams Apparatus Company, Watertown, N. Y.; Vernon Woodside, Dexter Sulphite Paper Company, Dexter, N. Y.; Sheldon J. Young, National Paper Products Company, Carthage, N. Y.

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## Aetna Paper Co. Makes Improvements

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, June 10, 1935—The Aetna Paper Company of this city is preparing to make substantial improvements to its plant on Columbia street, Edgemont, principally in the reconstruction of its boiler room.

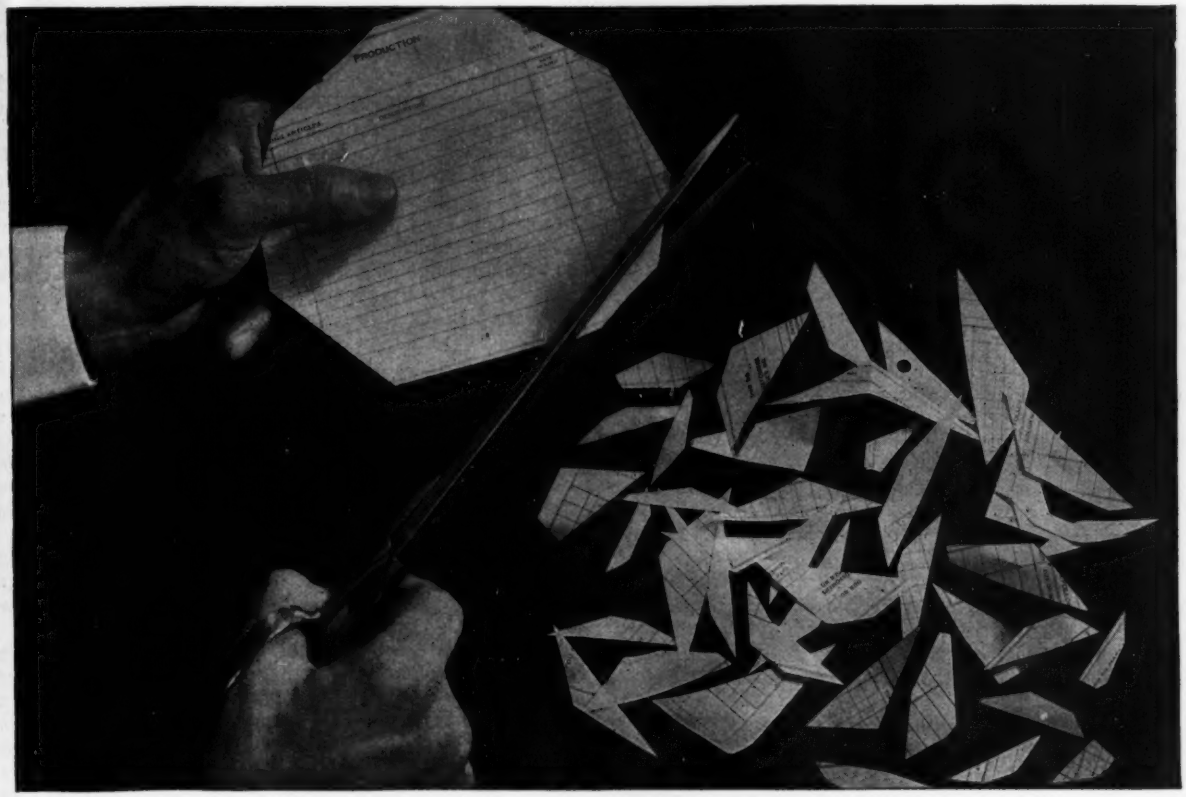
This one improvement will cost, according to estimates, about $90,000, but when completed will be sufficient for a long time to come. The bids for the installation of the boilers will be submitted the latter part of this week, and it is expected that no time will be lost in making the changes, which have been needed for some time.

The roof of the present boiler plant will be raised and more room generally provided for the expansion of that branch of the Aetna mills, which for many years have been filling Government printing office contracts and supplying paper, together with its affiliate plant at Franklin, near here, the Government envelope works in Dayton, conducted by the International Envelope Corporation.

L. P. Boswell, manager of the Aetna mills, returned home last week from a business trip. He immediately arranged to receive the boiler bids and to carry out plans he completed several months ago. Immediately after receiving the lion's share of the paper contracts awarded by the Joint Congressional Committee on Printing March 4 last, the Aetna Company decided to make the mill improvements. The amount of the business obtained by competitive bidding was almost $300,000.

However, the award was nothing new for the Aetna as it has obtained orders during the past 20 years from this Government source for good quality rag-content paper. The last order for 1500 tons, however, was one of the biggest to be awarded.

The Maxwell Paper Company at Franklin, formerly known as the famous Harding mills and which are owned by Col. Maxwell Howard, Dayton, and his associates, also is planning improvements, including the building of a new office and the construction of a new one-story structure to be used for storage and distributing service, it is understood.



# CUTTING CORNERS

● A capacity for cutting corners is required in the alert plant executive; but many plants today are in danger because corners were cut too closely, too long.

Resolve to listen to your engineer when he reports plant conditions, when he asks for replacement of worn valves, fittings, and piping. Welcome his suggestions. Weigh them carefully.

In the direct steaming system of a midwest plant, Crane engineers recommended a valve entirely different from that in previous use. Maintenance costs were cut from $300 a month to $50. There *may* be an equal opportunity to save in your plant.

Write for the Crane Plant Checkup List. It's free. And there's always a Crane representative as close to you as your telephone who will gladly co-operate in making a survey of your plant.

When you specify Crane valves, fittings or piping, you reap the benefit of 80 years of intensive research and engineering in materials and design; the result is enduring strength and precision in every Crane product.

# CRANE

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*Branches and Sales Offices in One Hundred and Sixty Cities*

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

## Abitibi Bondholders Committee Approved

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ontario, June 10, 1935—Bondholders of Abitibi Power and Paper Company, Ltd, in receivership, voted their approval to the formation of a new protective committee, comprised chiefly of members of the old committee, which expires June 10, to act in any pending court action, at a special meeting held in Toronto on June 7. The old committee has been in power for the past three years, having control of approximately 55 per cent. of the company's outstanding first mortgage bonds.

J. P. Ripley, New York, vice-president, placed a definite damper on recent rumors in regard to reorganization of the company when he stated in reply to questions from bondholders that the time is not ripe for reorganization, and that no plans have been drawn up by the committee.

The meeting was well attended, representatives from Chicago, Detroit, New York and other points being present. Scrutineers stated that of the $48,267,000 Series "A" bonds outstanding, $28,871,500 were represented either in person or by proxy, thereby giving the meeting its necessary quorum, or over 51 per cent. The vote on the new committee resulted with $28,842,500 of bonds for the committee and $25,000 against. As chairman of the self-established New York committee, composing $25,000,000 to $30,000,000 holdings, Mr. Ripley "with others" had approximately full voting power.

Questions were raised at the meeting concerning the company's timber rights, and it was officially announced that the Canadian Government had conceded all timber necessary for present and future requirements.

W. R. Sweezey, bondholder, held the floor for long periods in an attempt to uncover reasons for the failure of the company to reorganize. In a concise manner Mr. Ripley stated that no plans had been advanced due to the difficulties confronting the company financially and the general disorganized conditions in the industry itself. He stated that at the time of receivership the company owed the banks in the neighborhood of $3,500,000, and since that time had not earned more than $1,000,000 yearly before depreciation charges. Mr. Ripley pointed out that to date the committee had found it impossible to bring in any new capital on conditions which would be favorable to the bondholders.

The committee appointed was composed of: Joseph P. Ripley, vice-president, of New York; Stanton Griffiths, Montreal; Milton C. Cross, New York; W. H. Somerville, Waterloo, Ont.; Edward E. Reid, London, Ont.; Andrew Fleming, Montreal, and W. A. Arbuckle, Montreal. Of these members W. A. Arbuckle is the only new addition, all others having served on the former committee.

## To Open Tayloe Warehouse in Jackson

MEMPHIS, Tenn., June 10, 1935—The Tayloe Paper Company of Memphis, has taken a five-year lease on a warehouse building in Jackson, Miss., and will at once open a branch house at that point. They have for years worked the entire State of Mississippi and are establishing the house in Jackson to better serve their Mississippi customers.

A full line of fine and coarse papers will be carried at the Jackson house. Sherrod Townsend, who has worked the territory for years for the Tayloe Paper Company, will be in charge as manager.

George G. Tayloe of the Tayloe Paper Company, Memphis, together with Mrs. Tayloe will leave on the 13th with other Rotarians for Mexico City.

## Indianapolis Reports Conflicting

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 10, 1935—Opinions among the local paper jobbers differ somewhat on paper demand during the last week, particularly in the fine paper field. There are some who report fine paper demand, particularly for books and covers, has increased during the fortnight just passed, but others report the demand about the same it has been. One local jobber recently secured a contract from a local book publishing company for 250 tons of fine paper to go into school books. This is about the largest order thus far this year reported from local sources.

Much concern is being expressed concerning the adverse NRA decision. However, most of the local trade believe now that jobbers have been educated into making a profit, but a small percentage of them will again revert to old cut-throat methods. It is certain the decision will have no effect on wages or hours in local paper houses, or from what can be learned, in any of the Indiana paper factories. Some feel, however, that distributing centers in surrounding states may attempt to make this territory a dumping ground for surplus stocks at cut prices.

Demand for common papers continues good. Wrappers and bags are particularly active and a much larger demand appears to have been kept down by continued cool weather. Tissues are reported moving well.

Increasing demand is reported for all grades of building papers. The volume is reported at least 40 per cent more than the average for the last five years, with a promise of more demand during the summer. Newsprint is moving in fair shape. The volume is ahead of last year, but hardly up to the expectations of local jobbers. With reversal of codes, the newspapers seem to feel there will be lower print prices and many of them are using only current needs.

Paper stock men are not satisfied with demand or prices. Both are below what they claim the situation calls for. Local executives are afraid of lower prices now that mills are released from code provisions.

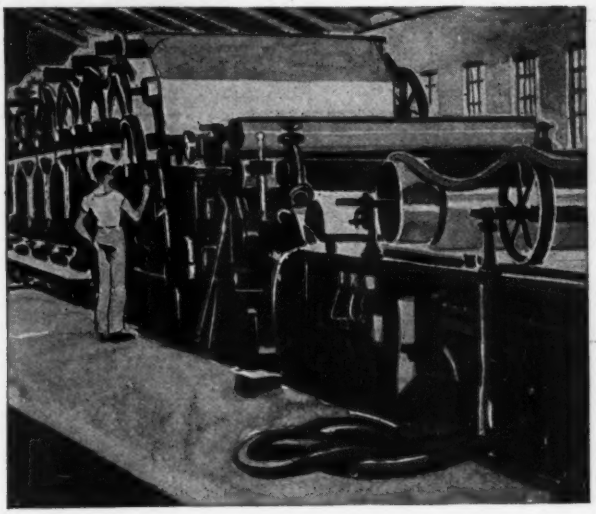
## Capital Paper Co. Wins Tax Case

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 10, 1935—One phase of the state administration's gross income tax law has just been held unconstitutional in circuit court here in a case brought by the Capital Paper Company, the Jackson Chemical Company and the J. P. Michael Company. The court held that sales of large amounts of goods by manufacturers to public and private institutions are wholesale deals and are subject to a tax of but one-fourth of one per cent. These previously had been regarded as retail sales and had been taxed one per cent. The court held the law itself does not define wholesale and retail sales, but that the administrative officers of the law had made the definition. This function, the judge said, is legislative and judicial and not administrative and therefore the operating definition is unconstitutional. Since merchandise sold in large quantities to public institutions and large private institutional buyers obviously are not for resale, the administrators previously had collected a retail tax on them.

## Maine Seaboard Moves Office to Bucksport

AUGUSTA, Me., June 10, 1935—The Maine Seaboard Paper Company has moved its office from this city to the mill at Bucksport. All mail intended for the company should be addressed to the Maine Seaboard Paper Company, Box 141, Bucksport, Me.



# YOUR *15 Years* ARE UP!

*Only* 19% *of the paper machines in operation today can be said to be modern. What of the other* 81%, *purchased during the years* before 1920? *Did you know that any paper machine requires a certain amount of rebuilding at the end of* 15 *years?*

* * *

Eight out of every ten firms who operate Fourdriniers and other paper machines have on their hands a piece of equipment that was installed more than 15 years ago. ¶ Fifteen years is the maximum period during which any paper machine will operate at highest efficiency without rebuilding of maior parts. ¶ S & W wishes to call to your attention the fact that, for many of you, the 15 years are up. Perhaps, already, your machinery is operating below par, causing you an extra operating expense that *could* be avoided.

*The* CONSULTING ENGINEER *has a Part in the Picture*

## S & W MODERNIZATION SERVICE

"Modernization Service" is a new service instituted this year by S & W, designers and builders of the two widest Fourdriniers operating in the world today on the finest tissues and condenser papers. Without charge or obligation, a "Modernization Engineer" will work with you or your consulting engineer in checking up on your machinery, and recommending economical methods for profit-making rehabilitation. We suggest you write us, scheduling an appointment. In the meantime, ask us to send you "Carrying the Torch," a description of our engineering and production facilities.

*Builders of straight, Edward and Harper type Fourdriniers; cylinder machines; wet machines; binders' board machines; leather board machines.*

★

*The* SMITH & WINCHESTER *Manufacturing Company*

1828

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

1:10

## Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 12, 1935—Identical bids of 5.48 cents per pound were received by the Government Printing Office for 335,000 pounds of M.F. book paper from the following: Barton, Duer & Koch Paper Company, John F. Post, Bulkley Dunton & Co., R. P. Andrews Paper Company, Old Dominion Paper Company, Graham Paper Company, Northwest Paper Company, J. W. Butler Paper Company, Dobler & Mudge, Whitaker Paper Company, Reese & Reese, Inc., Bermingham & Prosser Company and Mathers-Lamm Paper Company.

Identical bids of 4.93 cents per pound were also received for 50,000 pounds of M.F. book paper: Barton, Duer & Koch Paper Company, Fitchburg Paper Company, John F. Post, Bulkley Dunton & Co., Graham Paper Company, Watervliet Paper Company, Stanford Paper Company, Perkins-Goodwin Company, O. F. H. Warner & Co., Inc., Mathers-Lamm Paper Company and Champion Coated Paper Company.

For 22,750 pounds of gray laid cover paper: R. P. Andrews Paper Company at 13.09 cents per pound.

The Government Printing Office has received bids from the following at 17.7225 cents per pound for 11,500 pounds of white ledger paper; George W. Millar & Co., Inc., R. P. Andrews Paper Company, Barton, Duer & Koch Paper Company, and Mathers-Lamm Paper Company.

Bids at 6 cents per pound were also received for 77,500 pounds of offset book paper from the Aetna Paper Company, Barton, Duer & Koch Paper Company and the R. P. Andrews Paper Company. The latter company also bid 5.76 cents per pound.

An award for 335,000 pounds (5,000,000 sheets) of 24x38-67, M.F. book paper, bids for which were received on June 5 has been divided among the following eight firms at 5.48 cents per pound; John F. Post. Bulkley Dunton & Co., Graham Paper Company, Northwest Paper Company, J. W. Butler Paper Company, Dobler & Mudge, Whitaker Paper Company and Reese & Reese, Inc.

The Perkins-Goodwin Company has been awarded the contract for furnishing the Government Printing Office with 36,375 pounds (375,000 sheets) of 32 x 48" light weight M.F. book paper at 5.96 cents per pound, bids for which were received on June 3.

## "Where Paper Merchant Functions"

This is the title of one of the well written articles carried in the May issue of the Aldine Paper Company, house organ, *Excerpts and Inserts.* The item reads as follows:

"The wholesale paper merchant draws paper from scores of mills, according to variety, stocks the assortment in one place for the convenience of the printing trade and its customers, contacts the trade, and serves as a clearing house between the thousands of orders for small lots and the mills who must manufacture in large lots.

"Printers of long experience admit that they have often been 'stuck' with some paper problem requiring the assistance of a paper merchant friend. (And sometimes the paper man himself is 'stuck' and must call on the mills.)

"Information, samples and prices, credit facilities, prompt delivery of paper, are important elements, considering that paper constitutes about 30 per cent of the cost of the average printing job."

Copies of this house organ will be gladly mailed upon request from Aldine Paper Company, 333 Hudson street, Walker 5-3646.

## Caskie Paper Co. in New Quarters

Fortunate was Caskie Paper Company, Charlotte, N. C., in securing a modern building in the uptown section of the City of Charlotte, the largest city in the two Carolinas.

Back in 1922 when the Charlotte House was established, a small building in an alley was leased. Later as the business grew, still larger quarters, but still in an alley were rented. Now the Charlotte House is located on one of Charlotte's main thoroughfares, only two and one-half blocks from the city "Square."

The warehouse has every possible advantage from the standpoint of service and the offices, "Do right well for a country paper house," says Hugh Boyer, merchandise and sales manager.

Really, the offices, while not elaborate, are entirely modern. One feature of the offices is "Ben's Room." This is a private room for customers' use. It is furnished with a lounge, a table, comfortable chairs, a telephone. Here the printing salesmen can bring their customers; here the out-of-town customer can be "at home"—make it shopping headquarters, etc. Ben's Room also has ample room for specimen displays.

Free parking space for out-of-town customers is another feature of Caskie's trying to serve. Ample parking space is provided on each side of their new quarters.

Since 1922 the business has continued to increase, and so far 1935 has shown respectively increased monthly sales larger than any year's since 1928 and several months have exceeded any similar month in the history of the Charlotte House.

The Charlotte House is a branch of Caskie Paper Company, Lynchburg, Va. G. E. Caskie, Jr., is president, F. K. Williams, vice-president, and J. S. Caskie, secretary. All of the officers of the company live in Lynchburg.

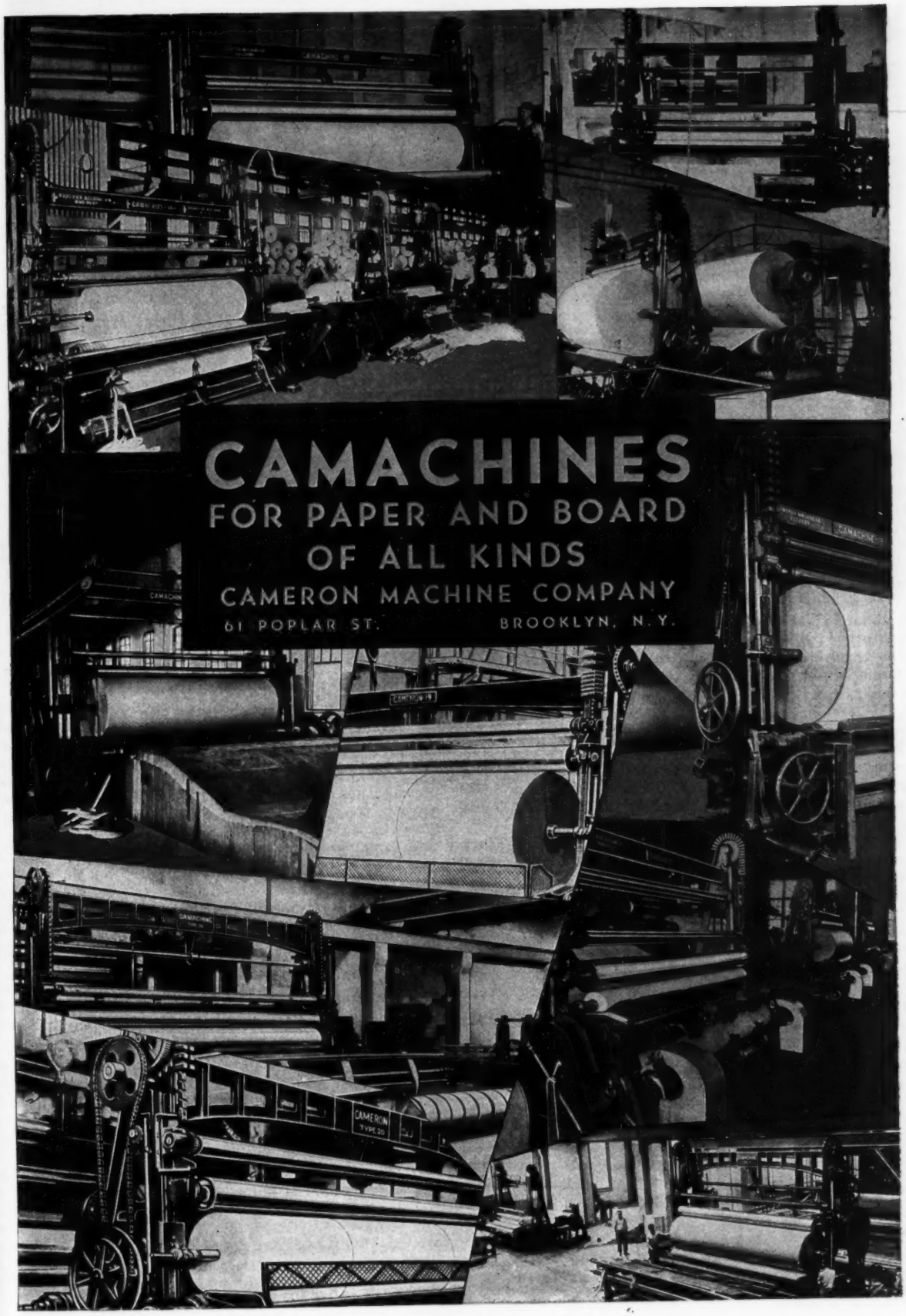
Caskie, Charlotte, distribute mainly mill brand papers, "Though if it's paper for the printer or publisher, we'll have it," is their slogan.

A large Neon Sign marks the front of the building. The eight plate glass windows across the front display prominently the trademarks of eight nationally known paper mills.

## D. B. Chant Visits Logging Departments

D. B. Chant, secretary-manager of the Ontario Pulp & Paper Makers Safety Association, Toronto, returned recently from a tour of the woods and logging departments of the Abitibi Power and Paper Company at Smooth Rock Falls and Iroquois Falls, and of the Spruce Falls Pulp and Paper Company, at Kapuskasing. Mr. Chant examined thoroughly the work being carried on in the interests of safety, accident prevention, first aid, etc., and reports that much interest is being evinced by the logging departments along the line indicated. About the same amount of pulpwood is being taken out by the companies concerned as last year, but the cutting and transportation are now becoming more and more an all-year-round operation.

Appearing in bankruptcy court at Osgoode Hall, Toronto, Lewis Duncan, K. C., on behalf of the Hydro Electric Power Commission of Ontario which is claiming one million dollars against the Abitibi Electric Development Company asked for an adjuornment until after the bondholders of the parent company meet on June 8—Justice McEvoy adjourned the hearing until June 11 on condition that the Abitibi company would file its dispute by June 8. Mr. Duncan, on behalf of the Hydro Electric Commission, stated that every month since 1933 the Hydro had been billing for this money with interest and the claim had never been disputed.


CAMACHINES
FOR PAPER AND BOARD
OF ALL KINDS
CAMERON MACHINE COMPANY
61 POPLAR ST. BROOKLYN, N.Y.

# CONSTRUCTION NEWS

*A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills*

**Construction News**

**Wisconsin Rapids, Wis.**—The Consolidated Water Power and Paper Company, manufacturer of newsprint, etc, is considering construction of new addition to local mill, to be two-story, 48x290 feet. It will be used for an extension to finishing division, and is reported to cost over $100,000, including machinery. C. E. Jackson is superintendent at mill; W. F. Thiele is chief engineer.

**Cleveland, Ohio**—The Winter Paper Stock Company, 1375 East 38th street, is considering early rebuilding of portion of storage and distributing plant on Perkins avenue, recently destroyed by fire. Loss is reported close to $100,000, including equipment.

**Philadelphia, Pa.**—The Paramount Paper Products Company, Inc., 226 Callowhill street, has leased a floor in building at Sixteenth street and Glenwood avenue, totaling about 15,000 square feet of floor space, and will occupy for storage and distributing service. Possession will be taken at once.

**Kennebunk, Me.**—Fire recently damaged a portion of mill of the Rogers Fibre Company, Centennial Hill district. An official estimate of loss has not been announced. The damage will be replaced.

**New York, N. Y.**—The Metropolitan Paper and Bag Corporation, 227 Sixth avenue, paper bags and containers, has arranged for increase in capital from $225,000 and 200 shares of common stock, no par value, to $450,000 and 200 shares of common stock, for general expansion.

**Jackson, Miss.**—The United States Corrugated Fibre Box Company, 1400 Roosevelt avenue, Indianapolis, Ind., manufacturer of corrugated fiber boxes and containers, has plans maturing for new branch plant in vicinity of Jackson; a site is being selected on other side of the river in Rankin County. Proposed unit will be one-story, 150x400 feet, reported to cost close to $50,000, including equipment. Equipment will be installed for large capacity. H. J. Lacy is president.

**Chicago, Ill.**—The Cogeshall Label Company has been organized with capital of 500 shares of stock, no par value, to manufacture folding paper boxes, collapsible containers and allied products, including labels, etc. New company will take over and succeed to the organization of same name, with local plant at 162 West Austin avenue. Incorporators include A. J. and G. H. Cogeshall.

**Canton, Ohio**—The Barnett Paper Company, H. B. Barnett, president, 1340 16th street, N. W., is considering early establishment of new local storage and distributing plant, to replace building recently destroyed by fire. An official estimate of loss has not been announced.

**Memphis, Tenn.**—Household Paper Products Company, 1302 East Woodbridge street, Detroit, Mich., manufacturer of paper specialties for domestic service, has leased property at Front and Exchange streets, Memphis, and will occupy for new factory branch, storage and distributing plant. Structure will be taken over at once and improvements made.

**New York, N. Y.**—Ernest Parlow, 620 West 189th street, manufacturer of paper specialties and novelties, has leased space in building at 151-55 West Twenty-fifth street, and will occupy for new plant. It is proposed to begin operations at new location at early date.

**Wausau, Wis.**—The Minnesota Mining and Manufacturing Company, 791 Forest street, St. Paul, Minn., manufacturer of sandpaper and kindred abrasive paper products, will have plans drawn at once for new one-story addition to raw material plant at Wausau, recently referred to in these columns, comprising a structure about 75x200 feet, to be used primarily for storage and distributing service. It is reported to cost over $45,000, with equipment. Toltz, King & Day, Inc., Pioneer Building, St. Paul, is company architect. William L. McKnight is president.

**New York, N. Y.**—The Pulp Products Company, Inc., 19-21 Dover Green, Dover, Del., recently organized under Delaware laws to manufacture pulp and paper products, has filed notice of organization to operate in New York, with capital of $500,000 and 10,000 shares common stock, no par value. New York office will be at 60 East Forty-second street; William M. Seabury is vice-president of new company.

**Amcelle, Md.**—The Celanese Corporation of America, Inc., 180 Madison avenue, New York, N. Y., manufacturer of viscose rayon products, is considering new additions to mill at Amcelle, near Cumberland, reported to cost over $150,000, with equipment. It is proposed to begin work on program during the summer. Company engineering department will be in charge.

**Newark, N. J.**—Ringel Brothers, paper products, have leased space in building at 717 Broadway for new local storage and distributing plant, replacing establishment at 154 Ogden street, recently destroyed by fire.

**Rio de Janeiro, Brazil**—Wolf Klavin, Rio de Janeiro, identified with paper mills in that district, is at head of a project to construct and operate a new viscose rayon mill in the same vicinity. A site has been acquired and work on initial buildings will begin at early date. Negotiations have been completed with the Tubize-Chatillon Corporation, 2 Park avenue, New York, for purchase of equipment in idle viscose rayon mill at Hopewell, Va., at a price reported in excess of $2,000,000, and machinery will be shipped to new destination at early date. Plant will comprise several large operating units, with power house, machine shop and other mechanical structures, and is estimated to cost over $3,000,000, including additional equipment to be installed.

Four De Laval turbines generating power from process steam.

# REPLACEMENT *with De Laval Turbines* PAYS

**STEAM TURBINE DESIGN HAS NOT STOOD STILL**, but rather has progressed more rapidly, during the slack years, so that many, perhaps most, old turbines can now profitably be scrapped in favor of new DE LAVAL TURBINES.

Improvements in:

Standards of metallurgical control and high strength alloys,
Streamlining of steam flow passages,
Stability of blading and rotors, and
Speed and pressure governors

all have contributed to make practicable the use of steam at higher pressures and temperatures and with greater efficiency and reliability.

Where existing steam power equipment is efficient and reliable, but more power is needed, high pressure boilers and turbines can be superimposed on low pressure systems to generate more power without increased cost for fuel or attendance; in fact, the fuel consumption may actually be reduced. Back pressure or extraction turbines produce power from process steam at exceedingly small cost for fuel.

*State your conditions so that our engineers can submit performance and cost figures.*

## De Laval *Steam Turbine Co.*, Trenton, N.J.

Manufacturers of Steam Turbines, Centrifugal Pumps, Propeller Pumps, Rotary Displacement Pumps, Centrifugal Blowers and Compressors, Worm Gears, Helical Speed Reducing Gears, Hydraulic Turbines, Flexible Couplings and Special Centrifugal Machinery. Sole Licensee of the Bauer-Wach Exhaust Turbine Systems.

A company will be formed by Mr. Klavin and associates to carry out the project.

**Hobart, Tasmania**—The Tasmanian Paper Printing Company, Ltd., Hobart, has plans under way for construction of a new paper mill on local site. New plant will consist of pulp and paper units, and will comprise a number of buildings on large tract of land. It is proposed to ask bids for different features of the project during the summer. Entire plant will cost close to $1,000,000, with machinery.

**New Companies, Etc.**

**Chicago, Ill.**—Rohrer Paper Company, Inc., 325 West Ohio street, has been organized with capital of 100 shares of stock, no par value, to deal in paper products. The incorporators are Eric A. Rohrer, Robert N. Holt and Mark M. Mooney.

**Dover, Del.**—The Modern Envelope Company, Ltd., has been chartered in Delaware, under direction of the Colonial Charter Company, Dover, to manufacture envelopes and kindred paper products. New company is capitalized at $500,000. The incorporators include H. I. Brown.

**Boston, Mass.**—The Paper Supply Company, Inc., has been incorporated with capital of 15 shares of stock, no par value, to deal in paper products of various kinds. John Patturelli is president, and F. I. Rosenbloom, 97 Stearns street, Brookline, treasurer and representative.

**Chicago, Ill.**—The Acme Bag and Paper Company, Chicago, has filed notice of company dissolution under state laws.

**Holyoke, Mass.**—Downing & Downing, Inc., has been incorporated with capital of 1000 shares of stock, no par value, to deal in paper mill supplies and equipment. Jeremiah T. Downing, 60 Nonotuck street, Holyoke, is president and treasurer.

## Walker Goulard Plehn Have Outing

The third annual outing of the Walker Goulard Plehn Company of New York City, was held at Narragansett Inn, Lindenhurst, L. I., on Saturday, June 1, 1935. A capacity crowd, a perfect day, and a splendid program of entertainment arranged by John Woolsey, chairman of the outing committee, all tended to the most successful outing the company has ever held.

Field games were held in the morning and prizes were won by Miss Kay Dehmer, Harry Marz, and Robert Plehn. Door prizes were won by Edward Bryan and Mrs. Robert Plehn.

After a most excellent shore dinner the gathering was addressed by the Messrs. Goulard, Plehn, and Walker. A gold wrist watch was presented to John Bernhardt, editor of the monthly house organ, the *W G P Broadcast*, for his splendid work on behalf of the organization.

In the afternoon a baseball game was held for the possession of the Burke Memorial Trophy. Needless to say, the cup was won by the single men but only after a hard struggle. The score was 3 to 1.

After supper there was dancing, and then the tired picnickers left for their respective homes full of praise for the outing committee who had provided them with such a marvelous time.

## Melrose Paper Stock Co. Moves

The Melrose Paper Stock Company, Inc., has removed its general offices to 12 West End avenue, corner 59th street, New York City. Telephones: Circle 7-2842-3-4-5-6-7-8.

## A. T. Nesbitt Returns from Mexico

DAYTON, Ohio, June 10, 1935—A. T. Nesbitt, vice-president of the Cincinnati Cordage and Paper Company, Cincinnati and Dayton, has just returned from a trip through Mexico. He was accompanied by his wife and several friends, the journey having been made in two automobiles.

Mr. Nesbitt is enthusiastic over his experiences and believes more Americans will visit that fascinating country in the near future than any other clime. Of course, the fact that the Rotary and Lions clubs will hold their conventions in Mexico City this summer also will increase the number of visitors.

Mr. Nesbitt states that the natives and the better class residents of the country show genuine hospitality, doing everything they can to make the stay of foreigners pleasant, while the rate of exchange makes it possible for American money to stretch over considerable territory. The money will buy about three times as much in service and goods as in this country, with the exception of hotel rates. The restaurants and amusement places are pleasant and the climate is ideal most of the time.

Mr. Nesbitt en route to Mexico was impressed with the opportunities presented at Laredo, a thriving little city in Texas on the border of Mexico. He believes the town is bound to grow as thousands of people are passing through there both summer and winter.

The trip from Nuevo Laredo to Monterey was a really beautiful adventure. The lower section was mountainous. Ranger Mountain was found to be perfectly bare—nothing but rocks. It resembles the Rocky Mountains, he said, but is not nearly as high. Monterey is a manufacturing city and many Americans have an interest in factories there. The population is 80,000. He told of attending cock fights and bull fights, and of taking part in the popular diversions of that country. In Monterey he found an exhibit placed by the Chamber of Commerce which he considered one of the finest he had ever seen.

The Daytonians boarded a train at Monterey for Mexico City, leaving their automobiles behind. This was an interesting trip through the mountains, Mexico City being located at an elevation of 7,400 feet. In April when Mr. Nesbitt was there it was hot and dry. The rainy season begins in June and continues for many weeks.

All points of interest in Mexico City were visited by Mr. Nesbitt and his friends and they felt they were well repaid. From the Cathedral to the Fine Arts buildings, Federal structures and Government Pawn Shop, on to the unusual parks, the inspection was one continual round of surprises.

The visit to Cuernavaca, south of Mexico City, was especially pleasing, as well as that to Taxco, where nothing modern is permitted to exist, the Government striving to keep it as it was thousands of years ago. Here people go 50 miles through the mountains to attend church.

"On the whole," said Mr. Nesbitt, "the most wonderful thing to us was the friendly attitude of the people toward Americans. We are hoping the people in the United States will have a friendly attitude toward Mexico."

While it may be a long time before the paper trade may benefit substantially from trade in that country, Mr. Nesbitt said the opportunity is presenting itself. He spoke of the nondescript supplies of paper there and of the little paper mill he inspected. "However, they make paper" he said. "They seem to favor poster paper and most of their product is cheap. Their hotel and home stationery is not attractive. But for the high transportation charges, it would be possible for paper men in this country to do a thriving business across the border. Probably in time this problem will be solved."

# holds stock levels right where they belong

**At last you can hold pulp or stock levels in head boxes, couch pits, and other open tanks with accuracy. Mason-Neilan Engineers have definitely overcome this difficult paper mill problem by developing a *new* Stock Level Control System.**

**It actually weighs the head of stock in a couch pit or tank . . . transmits this information to a sensitive air-operated instrument, which in turn regulates a stock inlet or outlet control valve. The result is more precise and more dependable pulp or stock level control than has ever before been possible.**

**With one stride this advanced system hurdles all half-measures . . . eliminates all the disadvantages of ordinary methods of stock level control. This system holds the stock at any desired level from top to bottom of the tank . . . it cannot cycle or over-control and is practically unaffected by accumulations of stock on its non-corrosive stainless steel diaphragm. Here is a system that the stock cannot plug. The instrument is easily and quickly set for any required level and can be furnished in either indicating or recording types. The control valve has been developed expressly for handling heavy stock and *will not plug or clog*.**

**The many other features of this new Mason-Neilan Stock Level Control System which will enable you to smooth out the operation of your mill are described in a new bulletin—just off the press.**

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## BUSINESS LEADERSHIP IN RECOVERY

Recovery, Mr. Charles R. Gay, recently elected president of the New York Stock Exchange, warns business is now in its hands.

Speaking before the Chamber of Commerce of the State of New York on "The Roll of Business Leadership in Recovery," Mr. Gay said the United States Supreme Court's invalidation of the NIRA had "reopened a broad, proved highway" and that the responsibility for making the fullest use of it rested in the shoulders of American business men, large and small.

Mr. Gay asserted that six recent estimates of the deficit in the output of durable goods during the depression had ranged from $27,000,000,000 to $85,000,000,000, with the National Industrial Conference Board placing the loss at $69,000,000,000. At the rate of production in 1929, the backlog of private residential construction would provide work for more than three and one-half years, while the slack in commercial and industrial construction would require three years' operation, Mr. Gay said.

"Thus far the government appropriations for the rehabilitation of business have mounted to $8,000,000,000," he continued. "The estimated backlog of potential business postponed by the depression amounts to $69,000,000,000. Two facts are obvious: first, that the task is too great for the government; and second, that business has the power to recover if granted a reasonable opportunity to do so free from uncertainties.

"We have a gigantic jam of accumulated wants and buying power. What will release it? There is only one way in which this can be accomplished: namely, by satisfying the conditions under which private business can afford to take risks. These conditions are freedom for management, a greater sense of security and an abatement of the hostility toward profits.

"The first condition of continued revival is a realization, a tolerant realization, that the business man must have returns equal to his outgo," the speaker said. "He must have reasonable freedom in adjustments which will make this possible.

"Most important, in view of the Supreme Court's decision, he must not abuse this freedom. Any widespread resort to wage cutting or the revival of unfair working conditions must provoke anew the latent animosity toward business and revive a demand for some form of government regulation. Today offers an opportunity to the American business man and a definite challenge to the quality of his leadership."

The Exchange's leader described the NIRA as "a vision of an industrial order conceived in sincerity," but pointed to the elevation of the living standards of American workers, which, he said, had been accomplished "without the whip of law." Asserting that industrial codes "may serve as brakes but never as positive power," Mr. Gay said nothing could take the place of intelligent business leadership.

"There must be a clearer recognition of the contribution the business leader makes to the welfare of the country," he added. "The head of a corporation employing thousands of men is no less valuable than the educator, the surgeon or the political leader.

"Generally, the business leader of today was the worker of yesterday. He worked and studied long hours. Ambition was his only taskmaster; equal opportunity in a democratic land his only condition. He stood out from the crowd because he worked harder, because he led the way, because, as in every other field of human achievement, he was willing and glad to sacrifice present comfort for a future place in the sun. The business history of our country is an amazing record of the resourcefulness and energy of our business men.

"I sympathize with those who seek, by law, or a controlled economy, to cut the peaks from boom times and fill the valleys of depression," Mr. Gay continued. "I fear, however, that in an effort to bring about stabilization we may bring stagnation. After all, a fundamental reason for the greatness of America has been that it has always given to every citizen an opportunity to secure the fruits of his own energy and initiative.

"Ours is not a fixed goal. Our destiny is progressive and written in terms of the higher welfare. To be faithful to our heritage of promise we must cherish those rights which all history proves are requisite to progress."

## REPORT ON MILL SELLING POLICIES

Joint efforts of paper manufacturers and merchants have been made during the past year or more to improve trade conditions through the promotion of standardized distribution practices determined upon after broad surveys and thorough-going analyses of distribution problems. In practical application, this effort has focused largely on lines of paper and paper products handled in the Wrapping Paper Division of the National Paper Trade Association such as kraft, bags, tissue, gummed tape, cups, dishes, twine, etc. The national and local committees covering these lines have, of course, participated.

Progress has been made to the point of issuing to all

manufacturers serving the trade a questionnaire which will enable them to go on record as to their policies and views involving distribution, on the basis of which it is expected that members can be supplied with definite information for their own guidance.

The present status of the program and the methods under which it will be carried out are stated in the Bulletin to members of the Wrapping Paper Division which is printed below:

"For the past two years this association, through its committees, has been striving to assist interested manufacturing groups in their efforts to improve conditions through the establishment of standardized distribution practices which would be generally observed. Such a need has been recognized on both sides and a sincere effort has been made to rconcile any divergence of opinion for the good of all branches of the trade.

"Notwithstanding these efforts, there apparently has been some increase in the practice of direct selling by certain manufacturers as well as a tendency to disregard old established differentials for less than carload quantities of certain lines of merchandise.

"The apparent lack of tangible results obtained through efforts to secure general observance of standard distribution practices, has been attributed by many of our members to a lack of more definite information as to the policy of individual manufacturers which might present accurate data as to actual conditions in various markets.

"We are now attempting to acquaint every member of the Wrapping Division with definite information as to the selling policies of individual manufacturers in the various major divisions of manufacturing and converting through a classification system.

"There will be presented shortly to every member of the Association a 'Confidential Report on Mill Selling Policies' for each of the major manufacturer and converter divisions.

"Manufacturers and converters will be designated in one of the following classifications:

"A. Sells and distributes only through established paper merchants.

"B. Sells and distributes through established paper merchants and other wholesalers.

"C. Sells, distributes through established paper merchants, other wholesalers and direct to national chain or other large consumers, allowing an adequate distributors' differential to wholesalers.

"D. Sells wholesalers, established paper merchants, national chains or other large consumers at the same price level.

"E. Sells national chains or other large consumers at a lower price than established merchant distributors.

"X. Classification given to manufacturers who after announcing a general policy, have been found to practice a different policy.

"No classification given to manufacturers who have refused to give information as to individual selling policies for the purpose of this classification."

## Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Production Ratios for the designated periods.

| | Reporting Mills | | Total Production |
|---|---|---|---|
| | Number | Capacity | Ratio |
| September, 1934 | 292–299 | ..... | 59.4% |
| October, 1934 | 297–394 | ..... | 64.7% |
| November, 1934 | 385–399 | ..... | 61.7% |
| December, 1934 (a) | 396–404 | ..... | 62.1% |
| January, 1935 | 397–411 | ..... | 65.8% |
| February, 1935 | 407–409 | ..... | 70.0% |
| March, 1935 | 406–408 | ..... | 70.5% |
| April, 1935 | 405–407 | ..... | 70.0% |
| *Week ending May 4, 1935 | 405 | 167,291 | 69.9% |
| *Week ending May 11, 1935 | 407 | 167,399 | 69.1% |
| *Week ending May 18, 1935 | 401 | 163,259 | 70.1% |
| *Week ending May 25, 1935 | 382 | 157,488 | 68.5% |
| *Week ending June 1, 1935 | 268 | 105,225 | 67.6% |

Statistics showing the number of mills reporting by ratio groups are given below:

| | Number of Mills Reporting | | | | |
|---|---|---|---|---|---|
| | Week ending | | | | |
| Ratio Limits | May 4, 1935 | May 11, 1935 | May 18, 1935 | May 25, 1935 | June 1, 1935 |
| 0% to 50% | 132 | 146 | 132 | 135 | 109 |
| 51% to 100% | 273 | 261 | 269 | 247 | 159 |

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

| | | |
|---|---|---|
| | September, 1934 | 62 per cent |
| | October, 1934 | 63 per cent |
| | November, 1934 | 56 per cent |
| (a) | December, 1934 | 53 per cent |
| | January, 1935 | 61 per cent |
| | February, 1935 | 67 per cent |
| | March, 1935 | 67 per cent |
| | April, 1935 | 61 per cent |
| | May 4, 1935 | 61 per cent |
| | May 11, 1935 | 61 per cent |
| | May 18, 1935 | 59 per cent |
| | May 25, 1935 | 61 per cent |
| | June 1, 1935 | 57 per cent |

(a) Capacity and percentage data exclude December 25, 1934.

Revised statistics covering delinquent mill returns will be shown in later reports.

## To Build Mill at Seal Cove, B. C.

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., June 8, 1935—Further information is now available regarding the establishment of a new pulp and paper mill at Prince Rupert, B. C. This is one of four new plants which have been mooted in British Columbia for some years past. Negotiations have been conducted by F. L. Buckley, lawyer, 1030 Hamilton street, Vancouver, B. C., and the firm was recently incorporated at Victoria with registered headquarters at Mr. Buckley's offices, under the name of the Mutual Pulp and Paper Mills of Prince Rupert, Ltd.

It is proposed to build the plant on the site of an old lumber mill at Seal Cove, and work is expected to get under way in July. The initial unit, according to present plans, will have a capacity of 150 tons of paper and 30 tons of sulphite pulp per day.

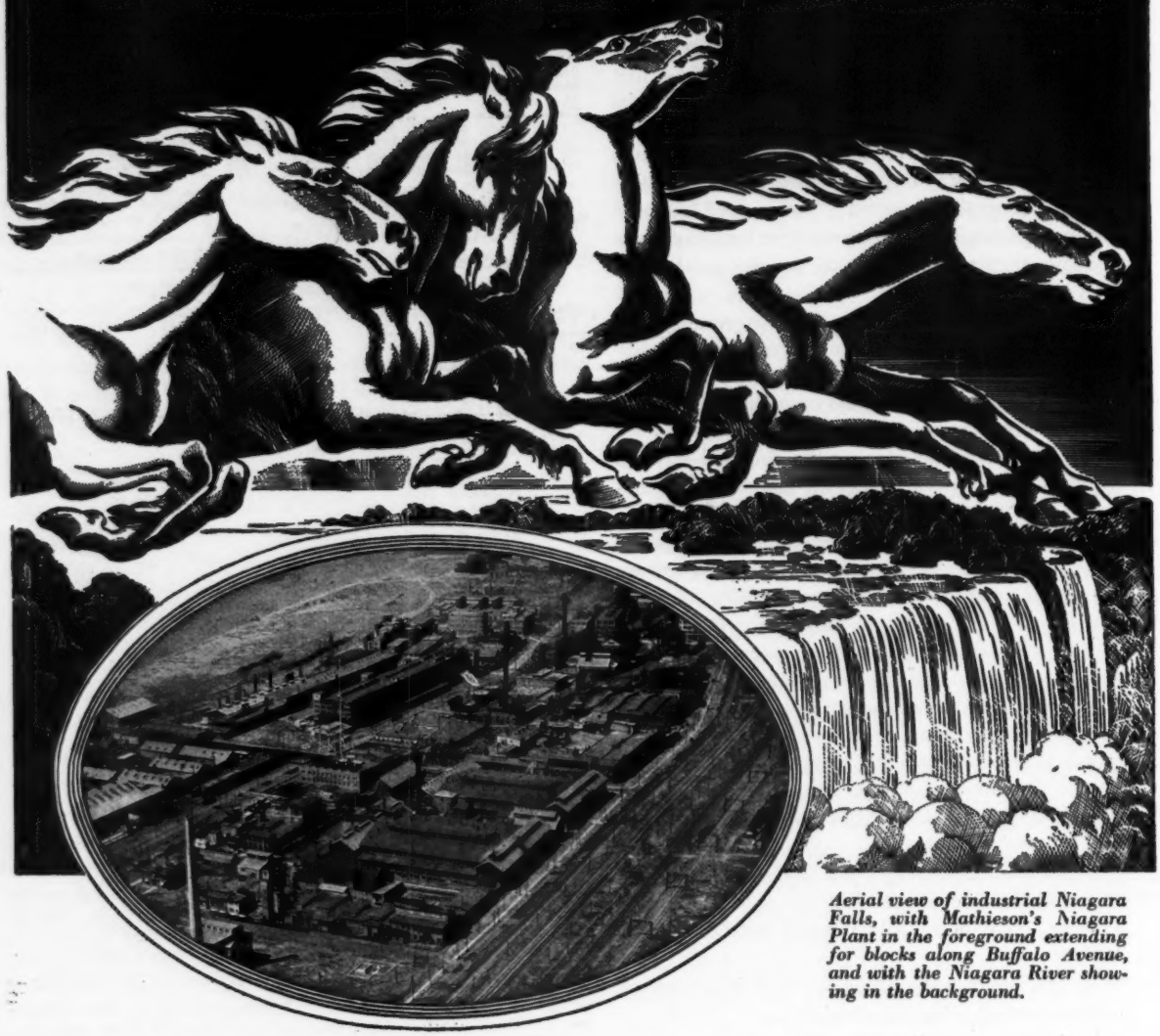
## Graham Paper Co. Moves Dallas Store

[FROM OUR REGULAR CORRESPONDENT]

DALLAS, Tex., June 10, 1935—The Graham Paper Company, now located at Griffin and Broom, has secured a seven-year lease on the five-story and basement building on the northeast corner of Pacific and Market.

The building formerly was occupied by an implement firm and contains 48,000 square feet of space. It will be remodeled throughout, new docks and a sprinkler system installed. Removal will be about August 1.

# *Where Niagara's "Wild Horses" are harnessed into* MATHIESON SERVICE



*Aerial view of industrial Niagara Falls, with Mathieson's Niagara Plant in the foreground extending for blocks along Buffalo Avenue, and with the Niagara River showing in the background.*

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*Mathieson Chemicals*

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

# The Importance of the Calender Stack in Paper Manufacture*

By E. H. Berges[1]

The calender stack is a small unit in comparison with the rest of the machine, and with the exception of the men in the mill few people know the importance of the calender stack in a paper machine. It is not realized that when trouble is encountered at the wet end or driers the superintendents and operators must try to obtain a good reel by manipulating the calender stack.

Due to the fact that at times the calender has to make up for the discrepancies of the other units, it receives more abuse than any other part, such as shutting off the water on the bearings and padding the rolls. This emergency or necessary abuse frequently is to overcome the errors in the sheet as it comes to the calenders. When this is understood, the importance of this unit may be readily appreciated.

A stack of calenders needs continuous, not periodical, inspection if it is to be kept in good condition. A stack should not be allowed to run for long periods without the sheet in the machine as the rolls are heavy and if small particles of stock, pitch, paper, or anything hard sticks to a roll it will cause a bump or thud which amounts to more than a sledge hammer blow, hammering continuously until the sheet is back in the stack. After watching a stack run for some time one will wonder how a set of rolls can stand up at all under such conditions. This does not mean stopping the calenders for every break, for that would be impracticable, but during wash-ups or any lengthy shut-down the calenders should not run.

Very often a stack is allowed to run with one or more rolls plainly showing dull and shiny streaks from end to end and while one spare roll is being ground to replace the defective one the rest of the stack is being injured, for one marked roll in the stack will injure the rolls next to it, and they in turn injure the next. If a calender stack has one or more marked rolls it would be expedient to remove them at once and run the stack short of rolls if there are no available spare rolls.

### Physical Characteristics of Chilled Rolls

The rolls are a very important part of the calender stack and it would be well to give an idea of their manufacture and the troubles encountered in operation.

Chilled roll iron may contain a carbon running anywhere from 3.00 to 3.75 per cent, depending on the physical characteristics desired in the roll. By the proper adjustment of the silicon, sulphur, phosphorous, and manganese, together with the cooling speed, the carbon may be retained entirely as combined carbon, resulting in white iron, or only partially as combined carbon, resulting in either mottled or gray iron. A combination of these structural characteristics is present in most chilled iron rolls.

The body of the roll is formed by a heavy cast iron chiller, and the necks by sand molds. The difference between the heat conductivity of the iron chill and the sand mold results in the body of the roll, where the molten iron comes in contact with the chiller, having a white iron skin, of varying depths, depending on analysis and purpose, the necks being gray. Under the microscope, the white iron portion of the roll would show a structure composed of cementite and pearlite, the gray part of the roll a structure of pearlite and graphite. From this it will be seen that quick cooling gives a hard surface, for instance, cementite, but where the roll cools more slowly the cementite is changed to free graphite which is comparatively soft.

Between the zone which consists of cementite and pearlite, and that consisting of graphite and pearlite, there is an intermediary zone which has both cementite and graphite—in other words, is composed of what is known as mixed iron. A clear chill is of the same hardness and usefulness until the point of mixed iron is reached. At that point the soft iron, or graphite, will show up in the form of minute specks on a polished surface.

One of the great difficulties is to control the various elements in the roll and the temperature of pouring so as to give a chill of the correct depth. Chilled iron is very brittle and the strength of the roll is principally in the backing iron or in the zone consisting of graphite and pearlite. The chilled surface must be sufficiently deep to resist the crushing stress and abrasion and yet not so deep as to detract from the strength which is found in the softer iron which lies below it.

### Turning, Grinding and Crowning the Rolls

After being cast, the rolls are sent to the roll shop to be finished. The journals are turned, the body is machined, and the ends squared back. At this stage the depth of

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, John Marshall Hotel, Richmond, Va., June 5-7, 1935.

[1] Manager Roll Dept., Farrel-Birmingham Co., Inc., Ansonia, Conn.

chill is observed and hardness tests made. If the quality of the roll is not up to standard it is scrapped at this point.

If everything is satisfactory the journals are ground and the body ground while revolving on the journals. We consider this procedure superior to grinding on centers as the body will then be concentric with the journals.

On the majority of stacks for work on specialty papers, the top roll has a small crown to compensate for the weighting applied to the journals. The intermediate and next to bottom rolls are straight or have a slight crown and the bottom roll is crowned sufficiently to take care of the deflection caused by the weight of the rolls themselves and the loading.

If the intermediate rolls have a slight crown it is no disadvantage but rather an advantage, as this will keep the ends from contacting when there is no paper passing between the rolls. If the rolls are concaved then the ends will contact when there is no paper on the stack, eventually pieces will flake out and once the rolls start flaking will continue to do so until the rolls are reground.

### The Importance of Correct Crown Shape

In many mills when crowning the bottom roll not enough care is taken to obtain the correct shape. If the right curve is not obtained it is difficult to obtain a good sheet on a calender. As an example, we were asked for the amount of crown to put on a bottom roll of an eight-roll stack. In looking up our records we found that this crown should be .012 inch. The customer ground the roll and about three weeks later I was asked to visit the mill. I found that the first time the roll was ground it was crowned .012 inch in diameter. They considered it was not enough so the next week-end it was ground with .015 inch crown. It was put back in the stack and the operators still considering that the crown was not sufficient, again ground the roll, putting on .018 inch crown but this still showed a hard reel in the center. After watching this stack run for a short time, it was plain that the trouble was in the shape of the roll. This roll was taken out of the stack, allowed to cool and checked with the Farrel indicating caliper. As was anticipated, the center was flat. We sent one of our grinder operators to this mill to grind the roll. The roll was ground with .012 inch crown to the shape which we specified and after a thorough try-out the mill superintendent reported that everything was satisfactory and that they were getting a fine reel.

An investigation revealed that the trouble encountered in getting the correct shape was due to the fact that the roll was taken out on Saturday noon and the grinding started while the roll was still hot as the mill wished to have this roll back in the machine Sunday afternoon ready to operate Monday morning. When this roll was taken out of the grinder on Sunday it was still warm and of course the measurements of the shape of the roll taken at the time were probably incorrect, due to uneven expansion and contraction across the face of the roll. These rolls should be cold before grinding so that when the operation is finished and thoroughly checked with the caliper it will be known that the roll has the correct shape.

In our plant we are very particular when grinding the bottom rolls to see that they have the right amount of crown and the correct curve. In fact, the rolls are checked by two men. This applies to all rolls—top, intermediate, and bottom. When our grinder operator believes he has the right amount of crown and the right shape on the roll he sends for the foreman of the grinders and the superintendent of the roll shop and they thoroughly check the roll. In some cases the shape may not be exactly as we have specified so we continue grinding. It is again checked and if it is right the roll is passed but we will not take a roll out of the grinder until we know that we have the proper amount of crown and the correct curve.

### Crowning Devices

Many grinding machines are equipped with what is known as a "former," which is a curved plate on the side of the grinder bed. For years this former was considered the best that could be obtained for crowning rolls. However, this permanently-shaped former can be correct for only one length of roll. If varying lengths of rolls are ground it is necessary to accept a compromise shape or correct the shape by hand feeding of the wheel.

We have developed a crowning device which is so much superior to the old type former that we have equipped all old grinders in our own shop with this new device and are now obtaining rolls with the desired curve with greater ease and certainty. Several concerns having our grinders have discarded the forming bar on their old grinders and put on this new crowning device and all report that they are having much better success with their stacks due to the fact that they are obtaining a roll that is ground with the correct shape.

### Deflection and Other Factors Influencing Crown

It is difficult to compute the actual deflection of the bottom rolls to the thousandth part of an inch by the use of the usual deflection formula, because of the loading and the modulus of elasticity, which varies slightly. We determine the amount of crown by going over records of duplicate stacks and crowning new rolls according to successful experience in former cases. Although we have records of hundreds of stacks ranging from 12 to 298 inches face, it occasionally happens that we have not previously made a set of rolls that are identical in every respect. The only recourse then is to estimate the amount of crown according to the deflection formula, modified by our experience with the nearest similar rolls we have made.

After the rolls are finish ground, they are stacked and a light test made by passing a light along the bite of the rolls on one side and observing if any light shows through on the other side. If the rolls are properly ground no light can be seen through the bite. If the rolls are not light tight they are taken out of the stack and reground.

Occasionally the crown has to be increased after the rolls are received at the mill due to the bearings generating more heat than normal. Sometimes this heat is generated by end thrust. The heat flows into the end of the roll toward the center, causing expansion of that end, and unless the roll is sufficiently crowned, adjacent rolls will ride on the ends, leaving the center open, making a reel of paper soft on the ends and hard in the center.

Crossed rolls will cause end crowding between the end of the shoulder and the bearing, creating high temperatures. Furthermore, most of the pressure will be in the center, and the ends will be open, with the result of a well finished sheet coming off the center and a poorly finished sheet on the ends.

If the bottom and next to the bottom rolls are ground with the curve off center, the next to bottom roll will crowd so hard that the chafing rings will wear out very rapidly and, needless to say, one end will become very hot, causing expansion at this end and pinching of the paper.

If the mills will give their grinder operators plenty of time to grind the rolls and see to it that the right amount of crown and the correct shape are obtained, considerable time and worry will be eliminated in obtaining a good reel of paper. Of course, expansion and contraction of the

rolls in various places along the surface will always be encountered, some of this being due to friction from the doctors and a variation in temperature of the sheet, which will have to be overcome by using a cold air blast on the face of the roll. As previously stated, hot bearings will cause expansion at the ends of the rolls. Such bearings should be checked for wear and misalignment, these factors corrected if necessary, and it should be seen that they are properly lubricated. In the case of water-cooled bearings an ample flow of water running freely through the cooling chamber is necessary for maximum cooling effect.

### Pitting or Rusting

Rolls used in water finish stacks, especially those with a water box against them, give a great amount of trouble due to pitting or corrosion. This is caused by materials in the paper and by the water. One superintendent made a study of conditions in his mill and reports that he found the trouble due to impurities or acidity in the material itself and that the water washed these impurities out, with the result that they attacked the rolls. Another mill reported that while using river water the rolls had to be ground every few weeks. They changed over to city water and do not have to grind for several months.

We have a large metallurgical staff that is giving considerable study to this subject in an effort to obtain a roll that has a hard surface and yet will resist rust. We have developed an alloy roll which is seven to ten points harder on the Shore Scleroscope than a regular chilled roll and which is more resistant to rust and a decided improvement over the regular roll without alloys for both dry and wet stacks. While the alloy roll retards pitting, no hard roll yet developed for paper calender stacks can be guaranteed to completely resist pitting.

In the regrinding of pitted rolls, the grinder operator should be instructed to get below the pits, for if this is not done the rust will continue to eat down in the remaining holes and it will only be a short time before they have to be reground.

### Chatter and Ripples

When rolls are reground it is necessary to see that all chatter is eliminated, for if there is any chatter left in the roll the adjacent rolls will become marked and it will be only one to two weeks before all the rolls in the stack have chatter marks.

Ripples which occur in the wide stacks running at high speed are another source of trouble and if they are not removed in grinding will appear very soon after the rolls are again placed in the stack. When old rolls are returned to us for regrinding, if they are rippled we immediately put them in our roughing grinders and take off a considerable amount of stock before putting them in the finishing grinder. We have 30 grinding machines in our plant and therefore can do this. However, in a paper mill with only one grinding machine if a roll is badly rippled it would be well to take out the finishing wheels and use roughing wheels. After the roll is finished it is very difficult to see these ripples and they cannot be measured with ordinary instruments. We know from actual experience, however, that sometimes they are still in the roll after grinding. Please realize that ripples on the high speed machines will again appear due to the whipping action but if they are removed when grinding it will be a much longer time before these ripples reappear.

### Best Results from Complete Set of Spare Rolls

Some mills have a complete set of change rolls so that when it is necessary to regrind the rolls in the stack all rolls except the bottom are removed and replaced with reground rolls. In these mills they are having much better success in obtaining a good sheet of paper for a longer period of time than the mills that change two rolls every week-end. The reason for this is that when two or three rolls are removed for grinding the other rolls in the stack are usually marked and when the new reground rolls are placed back in the stack the old rolls immediately begin to mark the reground rolls. This means that within a short period of time the reground rolls will be badly marked, due to the fact that they have been marked by the rolls which have not been reground. If every superintendent could have a complete change of intermediate rolls he would be saved a number of headaches.

### Doctor Scoring

Doctor scoring is another trouble encountered in the operation of calender stacks. In recent years considerable study has been given to the type of steel and bronze for doctor blades and new types of doctors have been designed which are a big improvement over the old style doctor. As you will undoubtedly recall, the old type of doctor blade was usually of soft steel from 3/16 to 5/16 inch in thickness with a long beveled edge. The blade was much softer than the chilled iron rolls yet they frequently scored and cut deep grooves in the rolls. When the mill started to use hard steel blades we thought the roll manufacturer was going to have trouble as the new blades were as hard as the surface of the rolls and we thought surely more scoring would take place. However, this has not been the case as there seems to be less scoring of the rolls today due not only to the type of blades and doctors being used but also the extra care being taken by the mill operators.

At the present time doctor blades are made of steel, bronze, Micarta, bakelite, and other materials. It has also been discovered that certain types of blades are better than others on certain kinds of paper.

Doctors should be thrown back at frequent intervals and the blade examined for wear, burrs, adhesion of sizing and other foreign matter. Adhesions should be removed and worn blades replaced with new ones. Doctor blades kept in good condition will prevent scoring of the rolls and lessen the frequency of regrinding.

### Other Causes of Roll Marking

The marking of calender rolls from creases, sand, or other foreign materials passing between the rolls is another problem that confronts the operator. The very hardest rolls we have ever made have worm marked. As you know, the rolls work harden on certain types of paper and recently the writer had the opportunity of testing an 8 inch diameter roll that we fabricated back in 1890. This roll had work hardened to such an extent that it tested 90 on the Shore Scleroscope. This hardness was rather unusual but it will give you an idea how some of these rolls work harden. We reground this roll and put it back in the stack and after it had been in operation a few days the roll had a large number of pock marks. A very thin paper was being made and upon investigation we found there was sand passing between these rolls. As the paper was very thin there was no cushioning effect so the rolls had to take the brunt of crushing the sand. When paper which is creased passes between the rolls you must realize there is a very heavy pressure at this point, as most of the weight of all the rolls above the crease is being applied at this point and as it usually is a line contact the pressure is tremendous, so that you can readily understand why these hard rolls mark. The same thing is true of a plug passing between the rolls.

# Results from the B&W-Tomlinson Process for the Recovery of Chemicals and Heat from Kraft Black Liquor*

By L. S. Wilcoxson[1]

It is the object of this paper to give a brief account of the construction and operation to date of the "B & W-Tomlinson" unit for the recovery of chemicals and heat from black liquor installed at the Windsor Mills, Que. plant of the Canada Paper Company.

### History of Process

It might be well before discussing details of the unit to give a brief survey of the history of the development.

The process involved in this unit originated with George H. Tomlinson, Technical Director of the Howard Smith Paper Mills, Ltd., Montreal, Canada. During 1929, following the acquisition of the Canada Paper Company at Windsor Mills, Quebec, by Howard Smith Paper Mills, Ltd., a number of improvements to the plant existing at that time were contemplated, among which were improvements to the recovery room. From previous experience with spray type furnaces with soda liquor at the Howard Smith Cornwall plant, Mr. Tomlinson decided to put in a modified unit at Windsor Mills, and as far as apparatus was concerned, installed a B & W boiler of approximately 265 h.p., set over a refractory furnace with a soapstone hearth. After a couple of years development and experimental work on this original unit it was decided during 1933 to install a further unit in which all of the experience accumulated to that date would be incorporated. Mr. Tomlinson collaborated with the Babcock & Wilcox Company in connection with this new installation, and as a result a unit as shown by Fig. 1 was installed. This installation was made during the Spring of 1934, the unit going into operation on June 27, 1934. Since that time a great amount of experimental and development work has been done, with the result that certain details of the process have been modified in view of the experience gained. Except for such matters of detail, however, the process is essentially the same as that contemplated by Mr. Tomlinson, and employed in the first unit installed, so that it will be appreciated that while this unit and process is being introduced to the industry at this time, and is therefore new in so far as its being a purchasable commodity is concerned, it is not new in the sense that it is recent and undeveloped, but on the contrary has been proven by continuous and satisfactory operation over a number of years.

### Windsor Mills Installation

The Windsor Mills unit is operating continuously on "Kraft" black liquor at a rating corresponding to the pulp mill production of approximately 75 tons of air-dried pulp per day. At the time the unit was designed a careful study was made of the economic aspects of the installation, and it was decided that it shoud be capable of producing steam at 450 pounds gage pressure and 750 deg. F. final temperature. The unit is built for these conditions, but at the present time is operating at 160 pounds gage pressure without superheat. Provisions for the installation of a superheater above the boiler bank were, however, made, and it is expected that in the near future a turbo-generator set will be installed at the plant, at which time the superheater will be installed and the unit operated at 450 pounds pressure. As far as component equipment was concerned it was decided at the time the unit was contemplated, that such equipment should be limited to a spray tower. Fuel and steam costs did not justify the installation of an economizer between the boiler unit and the spray tower, and as far as an air heater was concerned, it was decided that, as extensive experimental and development work was contemplated, it would be advantageous for such purposes to have a steam heated air heater installed, rather than a gas heated air heater, so that the temperature of the hot air to the furnace could be regulated at will. A steam heated air heater was installed a little over two months ago, and experimental work has been carried on with preheated air since its installation. Until that time, however, the unit had operated very satisfactorily day in and day out since starting up and throughout the winter of 1934-35 carrying the full plant load on cold air.

Structurally, this unit consists of a 440 h.p. B & W boiler, 14 tubes wide, 11 tubes high, tubes 24 feet long and drum 42 in. diameter. The heating surface of this boiler is 4,409 sq. ft. As is indicated, the boiler is baffled for three passes of the gases over the boiler tubes, the gases leaving the boiler between the downtake nipples connecting the steam and water drum to the downtake headers. The two lowermost rows of the boiler tubes are located to form a slag screen of widely spaced tubes. Soot blowers are located at strategic points, as indicated, and lancing doors are installed three sets on each side of the boiler, so that all of the boiler tube surface can be reached by hand lance if necessary.

### Bailey Full Stud Wall

The furnace is entirely water-cooled on all sides, and as such is believed to be the first all water-cooled furnace installed for recovery service. Bailey full stud wall construction is employed. Plastic refractory material of chrome ore base is applied between the stud tubes and on their faces adjacent the furnace forming essentially a monolithic furnace wall, the refractory being held in place on the tubes by means of the studs. The studs also function to conduct the heat away from the refractory through to the water tubes, and in this way serve to prolong the life of this refractory material. Chrome ore base refractory is used because of its chemically neutral nature, and the desirability in a furnace such as this, of having a refractory which will not be attacked by the chemical that is being recovered. This Bailey stud tube wall is a standard construction of the Babcock & Wilcox Co., and has been used extensively by them in the furnaces of direct-fired boiler units with exceedingly satisfactory results. It will be noted that the hearth of the furnace is

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.
[1] Babcock & Wilcox Company, New York, N. Y.

built up to a considerable thickness with the plastic refractory, and is inclined toward the tap hole, which is located essentially at the center of the front wall at the lowest elevation of the hearth. Primary air nozzles are located in the lower portion of the furnace at an elevation determined by the thickness of fuel bed desired and are distributed at equal distances along both side walls and the rear wall, so as to insure the proper distribution of air to the fuel bed. These air nozzles are castings, with the discharge from each nozzle terminating at the center line of the tubes forming the wall, so that no portion of the nozzle extends into the furnace. The outlet of each nozzle is specially shaped to contact with the adjacent tubes between which the air is discharged, and is bolted up to the tubes with a heat conducting cement between the surface of the end of the nozzle and the tubes to insure adequate cooling of the nozzle by conduction of the heat to the water tubes. each nozzle is provided with a simple orifice valve so that the air admission to the furnace can be regulated at will, to provide best combustion conditions, and the way in which these valves are employed will be discussed in further detail later, in considering the operation of the unit. Each one of these air nozzles is also provided with an observation glass, to enable the operator to maintain a close check on combustion conditions. Secondary air nozzles are supplied as indicated in the upper portion of the furnace—these nozzles being similar to the primary nozzles, but being relatively smaller in cross-sectional area. Both primary and secondary nozzles are supplied with air through a common duct from a forced draft fan. On the discharge side of the forced draft fan, and prior to the duct from which the air nozzle connections are taken, there is installed a steam heated air heater capable of heating the air to a maximum temperature of approximately 300 deg. F.

Subsequent to the boiler there is installed a spray tower. This tower, which is of bolted sheet steel construction lined with vitreous brick, is baffled by means of a plain steel baffle to provide for two passes of the gas there through. In the first pass, which is of relatively small cross-sectional area, there are a number of spray nozzles through which weak black liquor is sprayed in essentially horizontal sheets, and through which the gases have to pass. The second pass of the tower has an area such that when operating at the rated capacity equivalent to 75 tons of pulp per day the velocity of the gases will be in the neighborhood of 500 feet per minute. From the second pass of this spray tower the gases go through the induced draft fan, which is located on the top of the tower, and from there to the stack. It will be noted that a bypass arrangement with the necessary dampers is provided between the exit from the boiler and the stack, so that the spray tower and the induced draft fan can be bypassed if necessary and the unit operated on natural draft.

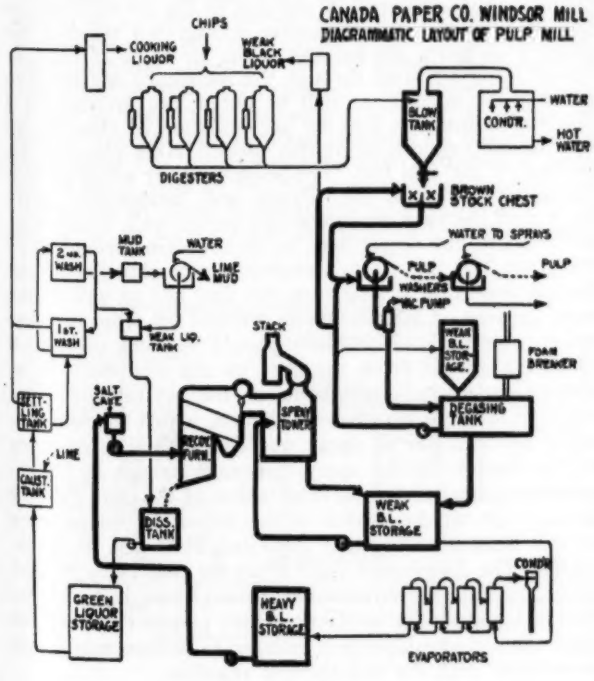


FIG. 1

### The Flow Sheet

Before discussing the operation of the unit in detail, it would be well to consider for a moment a flow sheet of the pulp mill indicating specifically the flow of materials as particularly related to the recovery unit operation. Fig. 1 shows the flow sheet for the whole pulp mill, that portion in which we are particularly interested being indicated in heavy lines.

In operation, the weak black liquor from the blow tank, washers, etc, which is stored in the weak black liquor storage tank, is pumped to the sprays located in the first pass of the spray tower, and then returned from the outlet in the bottom of the tower to this same tank, so that it is being continually recirculated through the spray tower. In doing this, the average weak liquor density is increased approximately 2 deg. Baumé, from let us say 11 to 13 deg. Baumé, measured at 60 deg. F. At the same time that chemical which is washed out of the gases by the sprays in the tower is returned to the system, very probably being taken into solution in the weak liquor. This partially concentrated weak liquor is then taken from the weak liquor storage tank to the multiple effect evaporators where, with the present operating conditions, it is concentrated to about 38 deg. Baumé, measured at 60 deg. F. or approximately 57 per cent solid concentration. This heavy black liquor is then pumped to a small tank located on the operating platform, from which it is fed to the furnace. To this tank is added the salt cake necessary to compensate for the losses not only in the recovery unit, but in other parts of the plant, and to maintain the required strength of chemical in the cooking liquor. The salt cake being used at this plant at the present time is from natural deposits in Saskatchewan, and is in a very finely divided form. It is taken by means of an air lift from the storage room adjacent the recovery house and is admitted to the mixing tank on top of the liquor as indicated, there being an agitator installed in the tank to insure continuous and satisfactory mixing of the salt cake with the liquor. The mixture of concentrated black liquor and salt cake in suspension is then circulated by means of a pump from the mixing tank through a pipe line that extends across the front of the furnace, and returned to the tank, so that irrespective of the amount of liquor being fed to the furnace there is always circulation of black liquor and salt cake through this line. From this circulating line a connection is taken off to the black liquor spray nozzle which is located at essentially the center of the front wall of the furnace at an elevation intermediate with its height.

### Form of Spray

As to the form of spray utilized in this furnace—what we want to accomplish is the formation of a coarse spray extending in a horizontal plane, and so distributed that there will be essentially equal distribution of the solids in the black liquor when they reach the two side walls and

end wall of the furnace. The objects of having a coarse spray are:

First—to insure a minimum of small particles which might become thoroughly dehydrated in the flight across the furnace and burned in suspension, resulting in the remaining particles of chemical being picked up by the gases and carried out of the furnace;

Second—to insure essentially all of the black liquor admitted into the furnace in reaching the walls in a still partially wet plastic condition, so that there will be adherence of the material to the walls; and

Third—to obtain an equal distribution of the spray across the cross-section area of the furnace so that all of the liquor will be dehydrated to essentially the same extent, and so that there will not be any unequal distribution of the gases arising from the bed of the furnace due to the excessive concentration in one locality.

A further object is to utilize as much of the area of the furnace walls as is possible for the deposition and building up of the solids in the black liquor, in order to obtain maximum capacity of the unit. To accomplish this the spray is given a vertical upward and downward motion in relation to the walls in a manner somewhat analogous to the application of paint with a brush.

The above objects are accomplished by means of a nozzle of a design developed specifically for this purpose, the nozzle being given a combination of vertical and oscillating motions to accomplish the distribtuion of the spray over the walls. The spray nozzle itself is very simple as is illustrated by Fig. 2, and consists essentially of a jet impinging upon a flat surface. The angle at which the jet impinges upon the plate is, of course, of primary importance, as this determines the distribution of the spray from the periphery of the plate, and, therefore, the distribution of the solids deposited on the furnace walls. As well as being of very simple construction, the nozzle is exceedingly rugged, in these respects being constructed to requirements which were laid down at the outset of the development as being essential for this type of work. The nozzle has no moving parts or small orifices that are likely to lead to operating troubles in clogging and the like; its sturdy construction enables it to withstand comparatively rough treatment if called upon to do so, and its simplicity of construction permits easy and inexpensive replacement. And in addition to these desirable features, what is of predominant importance is the fact that this construction of nozzle has proved very satisfactory in service. The previously described motion of the nozzle is accomplished at the present time by means of chain connections to a Reeves drive—the nozzle being pivoted on adjacent tubes of the furnace front wall at its point of admission.

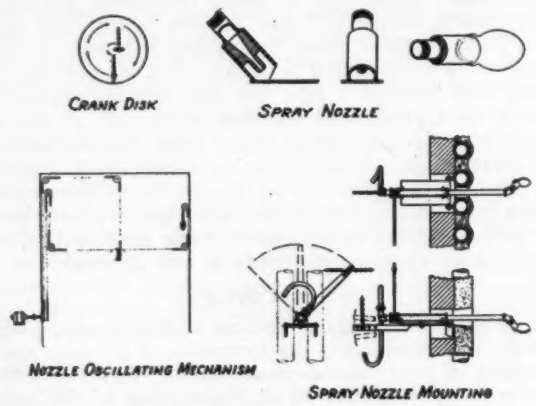


Fig. 2

### The Deposit on Walls

The net result of the use of this form of nozzle with the motion as stated, is that the coarse spray in the furnace covers essentially the whole of the cross-sectional area of the furnace extending in a plane of comparatively small vertical distance and small trajectory, rocking in the vertical plane and oscillating in the horizontal plane. Considering an individual particle of spray; this, in its flight across the furnace is dehydrated to some extent, but is still wet and sticky when it reaches the wall. Immediately upon impact with, and deposition on, the wall the body of the spray passes on to another position due to the combination motion given the nozzle and the particle in question is then exposed to the heat of the furnace, and as a result is completely, or essentially completely dehydrated. The spray then returns, depositing another particle of liquor, and this is repeated continuously, with the result that all of these individual particles build up in a mass on the walls of the furnace, the vertical extent of this mass being determined by the oscillation and vertical motion given to the spray. This accumulation of the material upon the side walls continues until the mass becomes unwieldy, when portions of the material, varying in size, but distributed in amount fairly evenly around the furnace, break off and fall down on to the hearth.

This accumulation on the walls, which we call "char," is of exceedingly light, porous formation, and is extremely reactive. As a solid fuel it approaches the ideal more nearly than other solid fuels that are in common use, and in activity is comparable to char obtained by certain low temperature carbonization processes.

The char as deposited from the walls of the furnace is as previously mentioned, fairly evenly distributed over the hearth of the furnace. Because of the nature of the fuel and the construction of this unit, combustion conditions can be maintained very closely to any reasonable desired point, and experience with the unit to date has indicated that char from kraft liquor can be burned satisfactorily with 25 per cent excess air. With our present method of operation approximately 90 per cent of the air required for theoretically perfect combustion is admitted through the primary air ports, the balance of the air up to 25 per cent excess being admitted through the secondary nozzles. The primary air nozzles, as will be noted, are directed in a downward direction into the accumulation of char on the hearth, and combustion by this process takes place on the surface of the fuel bed. The secondary air admitted into the upper portion of the furnace, and, incidentally, above the top of the char accumulations on the wall, is admitted horizontally, the object here being to obtain turbulence of the gases and the air to complete the combustion of the carbon monoxide arising from the fuel bed as well as the small amount of hydro-carbons distilled off from the char on the side walls. That there should be some distillation of hydro-carbons from the char on the side walls is, as will be appreciated, inevitable, as the perfect conditions required to avoid any such distillation, which would necessitate uniform size of spray particles with the frequency of the motion of the spray, are such as not to be expected practically. By the combustion of the char with the primary air on the hearth of the furnace a temperature in this locality of between 2000 and 2100 deg. F. is obtained. The chemical or smelt from the char being burned, upon liquefaction, flows down through the body of the fuel bed, and, due to contact with the porous carbonaceous char, the sodium sulphate is reduced to sodium sulphide in accordance with the endothermic reaction—

$$Na_2SO_4 + 4C = Na_2S + 4CO$$

With present operating conditions reduction is running between 90 and 92 per cent and the temperature of the smelt passing out through the tap hole to the dissolving tanks is in the neighborhood of 1500 deg. F., as measured by optical pyrometer.

As previously noted, each of the primary air nozzles has an adjustable orifice that can be readily manipulated by hand, so that the air admission to the fuel bed can be regulated at will. It will be appreciated that with the type of nozzle being used slight differences in the concentration of the spray, and also on the deposit of the char on the side walls of the furnace—this further being reflected on the accumulations of char on the hearth. When a nozzle is changed, therefore, the air admission through the primary ports might require slight modification to obtain best combustion conditions, and this is readily accomplished by the manipulation of these individual orifices in the nozzles. When the orifices are set for any one nozzle, however, there is no necessity for any changes to be made.

The gases rising from the hearth pass upward through the furnace, traversing the spray and, following the turbulent zone in which the secondary air is admitted and combustion completed, enter the boiler tube bank at a temperature of between 1600 and 1800 deg. F. The gases make three passes over the boiler tubes, leaving the boiler surface at a temperature, with present operating conditions, of about 750 degrees. In this connection it should be borne in mind, as previously stated, that the unit is not at present operating under its designed conditions, and this temperature will naturally be decreased when the superheater is installed and the unit operated at 450 pound pressure as originally contemplated. The gases then pass through the spray tower accomplishing a partial concentration of the weak black liquor as previously described, leaving the spray tower through the induced draft fan, and thence to the stack at a temperature of about 210 deg. F.

### Semi-Automatic Control

To facilitate the operation of this unit semi-automatic control is installed together with the necessary meters, temperature and draft indicators and recorders to intelligently regulate operation. Fig. 3 indicates the control, meters and indicators as installed. The control is accomplished by measuring the supply of black liquor to the mixing tank on the operating platform by means of the flow meter. (1) As this mixing tank is merely a reservoir of small capacity this flow measurement gives the actual supply of black liquor to the unit. An orifice is installed in the forced draft fan inlet so that the air flow is indicated and recorded on the Bailey boiler meter (2). The forced draft fan is operated at constant speed, the air supply to the furnace being regulated by means of louvre dampers in the fan outlet. These louvre dampers (3) are operated by means of a hand selector control (4) on the control panel (5). The concentration of the heavy black liquor to the unit is known by samples taken constantly and periodically during the normal operation of the unit, and knowing also the average analysis of the black liquor, a chart is set up for the operator showing the amount of air necessary with any given amount of black liquor of given density to maintain pre-determined combustion conditions. As already stated, the unit at the present time is being operated with 25 per cent excess air, and the operator can maintain this condition by manipulation of the hand selector, controlling the air supply to correspond with the black liquor that is being supplied to the furnace. Furnace draft conditions are maintained constant at essentially balanced draft or slight suction by means of louvre dampers (6) at the induced draft fan inlet, which are automatically operated by means of the connection (7) to the furnace, to maintain the desired furnace draft conditions. Steam flow is recorded and integrated on the Bailey boiler meter (2).

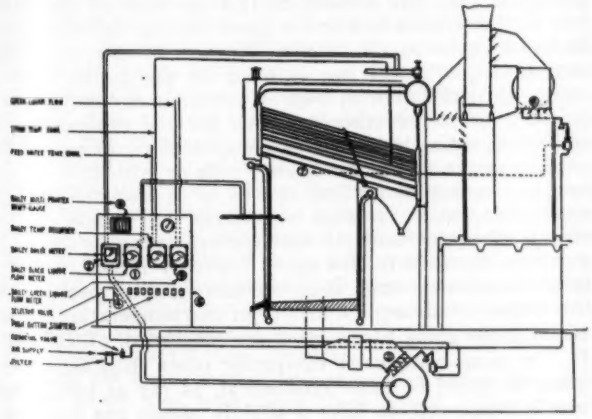

FIG. 3

The indicator (8) shows drafts at various points of the unit as: forced draft (at windbox), furnace draft, boiler uptake draft, and spray tower outlet draft. In addition to the Bailey boiler meter and black liquor meter, there is installed a flow meter (9) to record and integrate green liquor flow from the dissolving tank. Temperatures of the gases leaving the boiler and spray tower are recorded, as also are steam and feed water temperatures.

### Windsor Mills Installation

As previously stated, this unit at Windsor Mills has been in continuous and satisfactory operation since starting up during June, 1934. In saying that the operation has been continuous it should be explained that in the Province of Quebec the laws are such that no work of a productive nature can be done on Sundays, so that the unit is down from approximately midnight Saturday until midnight Sunday every week. The operation referred to is, therefore, on the basis of a 6-day week. The unit at the present time is taking the full mill capacity corresponding to approximately 75 tons of air-dried pulp per day, and has, as a matter of fact, been carrying the full mill load since shortly following its installation, as this was necessary in view of other changes that were being made in the mill necessitating a partial dismantling of the original unit. For test purposes we have from time to time made short period tests at higher capacities, and have operated up to a rate corresponding to 85 tons per day with very satisfying results. As to what the ultimate capacity of this unit will be we cannot say at this time, but we are still busily engaged in test work which will shortly, we believe, give us the answer to this question.

During November, 1934, a full week's test was run on the unit to give some indication of the results being obtained at that time, as well as indications as to future development work that might be necessary. In conducting this test the unit was run by the usual operating labor, and all conditions were maintained normal to the usual operation of the plant, so that the figures obtained could be taken as representative of average operating conditions, and not specifically test conditions. The results thus obtained, while not being considered as conclusive, are nevertheless interesting, as indicative as to what the unit can do under normal operating conditions. The thermal balance of the unit for this whole week's operation is shown in Table I.

TABLE I

| Steam Generating Unit— | Millions | B.t.u. | Per cent |
|---|---|---|---|
| Calorific Value of Black Liquor fired | .... | 6315 | 96.9 |
| Sensible Heat in Black Liquor | .... | 157 | 2.4 |
| Calorific Value of Fuel Oil | .... | 48 | 0.7 |
| | | | 100.0 |
| Heat Absorbed by Water and Steam | 3,281 | .... | 50.4 |
| Heat of Reduction | 237 | .... | 3.6 |
| Sensible Heat in Smelt | 163 | .... | 2.5 |
| Sensible Heat in Gases lvg. Boiler | 1,430 | .... | 21.9 |
| Latent Heat in Gases lvg. Boiler | 1,160 | .... | 17.8 |
| Loss due to incomplete combustion | 26 | .... | 0.4 |
| Radiation and Unaccounted | 223 | .... | 3.4 |
| | 6,520 | 6520 | 100.0 |
| Spray Tower Unit— | | | |
| Sensible Heat in Gases entering Spray Tower | .... | 1430 | 21.9 |
| Sensible Heat in Gases leaving Spray Tower | 312 | .... | 4.8 |
| Heat absorbed in evaporation | 1,118 | .... | 17.1 |
| | 1,430 | 1430 | 21.9 |
| Summary— | | | |
| Total heat supplied | .... | 6520 | .... |
| Losses—Incomplete combustion | 26 | .... | .... |
| Radiation and unaccounted | 223 | .... | .... |
| Sensible heat in stack gases | 312 | .... | 8.6 |
| Heat usefully absorbed | 5,959 | .... | 91.4 |
| | 6,520 | 6520 | 100.0 |

These results were obtained operating with concentrated Black Liquor having an average analysis as fired.

| | |
|---|---|
| Water | 41.6% |
| Dry Solids | 58.4% |
| Total chemical (as $Na_2O$) | 14.6% |
| $Na_2SO_4$ (as $Na_2O$) | .81% |

The average analysis of the dry solids was as follows:

| | |
|---|---|
| Carbon | 36.2% |
| Hydrogen | 3.8% |
| Sulphur | 2.9% |
| Oxygen | 15.1% |
| Nitrogen | 1.4% |
| Calorific value | 5942 B.t.u./lb. dry |

It should be added that analyses and calorific determinations were made by three independent laboratories on a composite sample taken over the week's operation, an average of the three results being taken as a means for the purposes of calculations on this test. Variations in results obtained from the three laboratories were not wide so that the assumption of the average was justifiable.

The average chemical conditions maintained over the week's operation were as follows:

| | |
|---|---|
| 1. Average reduction for the week (i.e., reduction in the furnace of $Na_2SO_4$ to $Na_2S$) | 89.6% |
| 2. Average sulphidity of cooking liquor | 37.0% |
| 3. Efficiency of chemical recovery at furnace, including dust collection | 94.4% |
| 4. Salt cake addition to the furnace per ton of air-dried pulp | 226 lb. |
| 5. Chemical loss at the furnace (as 96% $Na_2SO_4$) | 109 lb. |

The steam produced on a basis of from and at 212 deg. F. was 9720 lbs. per ton.

The average gas analysis resulting from periodic samples taken regularly throughout the week's operation was

| | |
|---|---|
| $CO_2 + SO_2$ | 15.0 |
| $O_2$ | 4.2 |
| Combustible | .1 |
| Inert | 80.7 |
| | 100.0% |
| Excess Air | 24.0% |

Average temperatures at various points during the test were as follows:

| | |
|---|---|
| Temperature of air to forced draft fan | 69 deg. F. |
| Temperature of gases at boiler outlet | 762 deg. F. |
| Temperature of gases at spray tower outlet | 220 deg. F. |
| Temperature of Black Liquor as fired | 202 deg. F. |
| Temperature of Feed water to boiler | 164 deg. F. |

Referring specifically to Table I, it will be noted that in the heat input to the furnace .7 per cent of the total heat is in calorific value of fuel oil used. This represents approximately 310 U. S. gallons used during the week for expediting the starting up and burning down operations. As to the items of heat absorption, it will be noted that the 3.6 per cent of the heat absorbed in the heat of reduction of the sodium sulphate to the sodium sulphide, as well as the 2.5 per cent of the heat in sensible heat of smelt are essentially at an irreducible minimum. The loss due to incomplete combustion of .4 per cent is negligible and radiation and unaccounted is about what would be expected with this type of unit at 3.4 per cent. Operating the unit as at present, at 160 pounds gage pressure without superheat, 50.4 per cent of the total heat is absorbed in the generation of steam, and it will be appreciated that this will be increased somewhat by the installation of the superheater, although there will be a compensating but not equivalent reduction due to the increase in pressure from 160 to 450 pounds. Theoretically, with the installation of the superheater and operation at higher pressure, this per cent absorption will be increased approximately 1.5 per cent. The latent heat of the water vapor in the gases leaving the boiler at 17.8 per cent will naturally vary depending upon the concentration of the liquor being fired into the furnace, but this heat is, however, usefully expended in any event in accomplishing the evaporation of the water in the black liquor in the furnace. The balance of the heat is in the sensible heat of the gases leaving the boiler, which, according to these test figures as 21.9 per cent of the total heat. This, however, is utilized effectively in the spray tower, as is indicated by the independent balance shown, where 17.1 per cent of this 21.9 per cent is usefully absorbed in the partial evaporation of the weak liquor, leaving only 4.8 per cent of the total heat as sensible heat in the gases going to the stack. The overall thermal balance shown at the bottom of the table indicates the total losses including incomplete combustion, radiation and unaccounted for, and sensible heat in the stack gases, amounting to 8.6 per cent with the total of heat usefully employed being 91.4 per cent. This latter figure, of course, takes into account the latent heat of 17.8 per cent being usefully employed in the furnace in evaporating the concentrated black liquor to dryness prior to combustion.

The utilization of the sensible heat in the gases leaving the boiler in a spray tower, as in this present installation, while naturally representing a considerable economical advantage, is not necessarily the most effective way of utilizing this heat. Obviously, concentration of black liquor by means of direct contact with gases, as in this spray tower, means an effective utilization of the heat on a 1 to 1 basis, or in other words, for every B.t.u. given up by the gases a B.t.u. is absorbed by the liquor and utilized in evaporation. However, this amount of heat could be just as well utilized, as far as the unit is concerned, in generating more steam by the use of either an economizer or an air heater or both subsequent to the boiler in so far as gas flow is concerned, in which event the steam generated could be utilized in, let us say, a quadruple effect evaporator, with the more efficient utilization of the heat in the steam at a ratio of roughly 3.2 to 1. The question as to whether or not an economizer, an air heater, or both should be installed with a unit such as this, naturally depends upon the economic conditions of the particular plant for which the unit is being considered, and primarily upon fuel and other costs which show up in the net cost of steam produced at that plant. One might say, therefore, that this amount of 17.1 per cent of the total heat in the sensible heat in the gases leaving the boiler can be looked upon as the thermal flywheel of this unit, and can be utilized at the one extreme for the partial evaporation of black liquor in a spray tower, as in this particular unit, or at the other extreme, for the generation of additional steam by means of component equipment such as economizer and/or air heater, with or without a spray tower. In this connection, it will be appreciated that it would not, under average conditions, be economical to absorb all of the sensible heat corresponding to the 17.1 per cent absorbed in this spray tower by means of component equipment such as economizers and air heaters, as this mount of absorption means an end temperature, in so far as gases going to the stack are concerned, of 220 deg. F. In using component equipment other than the spray tower it would be more economical, as far as equipment cost is concerned, to have a slightly higher gas temperature than this, and the assumption might be made arbi-

trarily that instead of 17 per cent of the heat being absorbed in component equipment, between 12 and 14 per cent of heat would be. Such a unit as this would result in a heat balance modified over that presented and discussed, in that the absorption of heat in the generation of steam would be increased from 50 per cent to between 62 and 64 per cent.

The spray tower naturally functions as a dust or chemical separator as well as a partial evaporator when used with a recovery unit. Its function as a separator can still be utilized to advantage even if component equipment such as economizer and air heater are found desirable, as it is a comparatively inexpensive but nevertheless efficient piece of equipment that could be added after the component equipment. In doing this, the final gas temperature leaving the spray tower would, as in this present case, be reduced to between 200 and 220 deg. depending upon the temperature of the weak black liquor being sprayed into the tower, so that the overall thermal efficiency of the unit would be the same as is shown by the heat balance in Table I. As stated this unit is now operating, as it has been operating for almost a year now, day in and day out with results comparable with the figures given. As a matter of fact, the heat balance at this mill is such that the steam generated by the recovery unit is more than sufficient to take care of all of the pulp mill needs, and as a result the mill is supplying, and incidentally being paid for, 1000 pounds of steam per ton pulp to the paper mill. The unit is being operated by the normal labor employed in the recovery house, there being one operator per shift, with an additional man for tending water and blowing tubes. Our experience indicates that in a plant with two or three such units installed in the recovery house there would be no necessity for an increase in the operating staff over that now being used on this unit. Our experience indicates that in a plant with two or three such units installed in the recovery house, one operator per unit per shift with one additional man for the complete installation tending water and blowing tubes would be adequate. This, we believe, is a conservative estimate of labor requirements.

### Refractory Life

It is the fact that we have not as yet had this unit in operation for a sufficient length of time to make any very definite statements as to the life of the refractory being used in the furnace or average maintenance charges. It might be pointed out, however, that shortly after the unit was installed a number of test panels of different refractories, treated in different ways, were installed in the furnace, so as to obtain data as to the relative merits of the various materials with the different methods of application. For the purposes of this test we did not limit ourselves to chrome base refractories, but used all forms of high grade plastic refractories. Of these test panels those containing the chrome ore base are standing up exceptionally well, varying slightly in life, depending upon the specific mix employed, and the method by which the mix was applied to the stud tubes. Other refractories of silicions and magnesitic base, taking the two extremes, have not stood up as well, and have, as a matter of fact, practically disappeared. From these tests to date we believe we have learned the best material to be employed for this service, and also the best method of application of such material. It should be added that in this work we were fortunate in having the very close and active cooperation of the Canadian Refractories Co. of Montreal.

All of the above discussion has been in connection with a unit to be used with kraft black liquor. However, it will be appreciated that the unit is equally applicable for service with soda black liquor, the fundamental differences being in the treatment of the liquor in the furnace, and this, primarily, as to the maintenance of an oxidizing atmosphere with the soda black liquor as against a partially reducing atmosphere with the kraft black liquor. Experiments are being conducted at the present time on a qualitative rather than a quantitative basis, to determine the conditions necessary for the satisfactory and successful burning of soda black liquor. Quantitative tests will, of course, follow these qualitative tests. To date the results of the tests made indicate that by some minor modifications to the method of admitting air to the furnace soda liquor can be utilized as satisfactorily as kraft liquor in this unit. A still further field for the utilization of this unit is with sulphite liquors. This, however, represents quite a study in itself, and little will be said about it at this time, except that with existing conditions, the installation of a unit for the disposition of sulphite liquor can scarcely be shown to be economical when compared with the dumping of that liquor into streams, as is the present common practice. The reason for this is that with kraft and soda liquors the chemical return is of primary importance, and represents a material part of the credit side of the economic balance sheet, together, naturally, with the steam produced and credit for reduction in labor and maintenance. With the sulphite mill, however, the chemical residue from the combustion process will be essentially calcium carbonate, so that the credit in the economic balance will be due entirely to the steam produced and reductions in labor and maintenance. However, if and when municipal or state legislation is enacted prohibiting the dumping of sulphite liquors into streams, as is already being evidenced in certain localities in this country, then this unit will be ideally suited for the disposition of such liquors, particularly so, as will be evidenced from the figures already given, as the heat recovery is at a maximum with labor and maintenance at a minimum.

At the present time, so far as the writer is aware, there are no plants operating in this country on the sodium sulphite process, although this is being experimented with in Scandinavia. There appear to be considerable possibilities for this process, and if it should prove to be successful and taken up, either in conjunction with, or superseding to some extent the present sulphite process, then, so far as chemical recovery is concerned, this will be essentially in the same category as the soda process in so far as the utilization of this recovery system is concerned.

In conclusion it might be stated that further detailed tests have recently been carried out at Windsor Mills but the results were not available in time for inclusion in this paper. It is expected that these results will be presented at a subsequent meeting of this association, together with a report on the behavior of the unit over the longer period of operation.

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## Pulpwood Rates Not Unreasonable

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 12, 1935—L. Way, an Examiner of the Interstate Commerce Commission, has made a proposed report in the case of the Badger Paper Mills, Inc., against the Chicago & North Western Railroad Company.

He found that the rates on pulpwood, in carloads, from points in Michigan (upper peninsula) and Wisconsin, to Peshtigo, Wis., over interstate routes are not unreasonable or otherwise unlawful.

# Downingtown Positive Adjustable Speed Controlled Top Press Roll Drive*

By Charles L. Ellis[1]

The object of all top press roll drives is to maintain a constant speed ratio between the bottom and top rolls to insure that no distortion of the sheet occurs as it passes under pressure through the nip of the press and to lengthen felt life irrespective of whether the top roll is heavily weighted or not weighted at all. It is also necessary to maintain this correct speed ratio whether the two rolls are of equal diameter or whether through grinding the diameters change in their relation to each other.

It is also important to maintain this correct speed ratio if necessity requires the substitution of a roll in either position, which may be considerably different in diameter than the roll it replaces.

In other words the peripheral speed of both rolls should be the same unless operating conditions require a difference, and this speed requirement should be possible of accurate and instant control.

For many years the first press rolls on board machines were geared together with gears having pitch diameters equal to the diameter of the rolls to which they were keyed. Trouble occurred when either of these rolls were ground, thereby reducing the roll diameters.

In some instances special gears were made to meet the new condition; in some instances long tooth gears were installed so that some difference in diameter of the rolls could take place without the gears bottoming, and in some instances the gears were removed altogether as less trouble was experienced with them off than with them on.

As higher speeds were reached with the attending increase in the number of cylinder moulds, wringer rolls, squeeze rolls and suction boxes, it became more necessary than ever to drive the top press roll and to drive it in a more satisfactory manner than simply gearing the rolls together with a pair of spur gears.

Various methods have been devised to drive the top press roll, such as the compensating gear and differential gear devices, but these have not satisfactorily accomplished the purpose.

Without going into the merits or demerits of the various devices which have been developed for this purpose, we wish to call your attention to one salient fact common to most of them, that is, they depend on the pressure contact between the rolls and their effectiveness can only be measured by the proportionate load on both rolls. If the top roll is unweighted and lifted clear of the bottom roll, the top roll will speed up or the bottom roll will slow down and if there are two felts on this press, one around the bottom roll and one around the top roll, unequal strains will be put on these two felts and the sheet will be distorted and production losses occur.

The Downingtown top press roll drive operates in an entirely different manner. It does not depend on contact at all. It is arranged so that predetermined speeds of the top and bottom rolls can be maintained regardless of the weighting between them and regardless of whether they are in contact or not.

To properly describe the device, it is necessary to go back to the regular first press drive coupled to the bottom roll. This can be any type of drive suitable for the work, such as mortise filled, or spiral having a hone pulley and clutch such as is in general use.

On the high speed shaft of this drive between the gears and the clutch is mounted a small cone pulley belted to a similar pulley which is mounted on the high speed shaft of a small gear unit, which in a suitable manner is connected to and drives the top press roll.

All of the above apparatus is controlled by the main clutch on the floor drive starting and stopping both rolls simultaneously and maintaining correct peripheral speed of both rolls.

The top and bottom rolls are not directly geared together. Instead the slow speed shaft of the gear unit driven by the small cones is arranged to drive a shaft which is centered in line with the fulcrum pin of the top roll arm in the press housing. On this shaft is a gear which meshes with a gear on the journal of the top press roll. It will be seen from this description that the top roll can be raised or lowered in the usual manner when roll is turning or standing still.

It is also evident that the speed of the bottom roll is controlled in the usual manner, that is through cone pulleys on variable line shaft and floor drive.

It is also evident that by means of the small cones above described, the top roll speed can be varied to suit conditions by means of the belt on these cones. The top roll will turn at this required speed regardless of whether it is in contact with the bottom roll or not.

As the greatest driving load is on the bottom roll, the gear unit for the top roll can be comparatively small and compact and a small cone belt can be used.

For the operator's convenience, a simple dial for indicating the relative peripheral speeds of both rolls is located where it may easily be seen and the speed of the top roll may be regulated by shifting the belt on the small cone pulleys.

We again emphasize the fact that this is a positive adjustable speed controlled top press roll drive which will function with or without the rolls being in contact and unaffected by any degree of weighting, any type or style of felts, any thickness of sheet, and whether or not a top felt is used. There is nothing to get out of order, there are no hidden parts, no slipping action and no guessing as to what the top roll is doing.

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## Changes in Fraser Personnel

K. S. Maclachlan, president of Fraser Industries Incorporated and Fraser Paper Limited, announces that Aubrey Crabtree has been made general manager and T. M. Barry mill manager of Fraser Paper Limited and Fraser Industries Incorporated, and following changes have been made:

F. W. Cole is in charge of the Eastern sales office at 424 Madison avenue, New York City, and J. G. Conley is in charge of the Western sales office, located at 111 W. Washington street, Chicago.

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* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.

[1] Vice-President, Downingtown Manufacturing Company, Downingtown, Pa.

# Soaps, Felts and Slime*

By R. W. Mitchell[1]

Disclaiming any knowledge of paper making, or of paper much beyond the fact that the latter is something used to print upon or to wrap packages in, I offer as my reason for appearing before you a fairly deep insight into the technology of soaps and cleaning materials, and I have had some experience in their application to paper mill problems, which may be of interest. The washing of paper mill felts is a subject of importance by reason of their expense and relatively short life, and because of the importance of their proper functioning in the operation of making paper. Paper mill felts are made from wool fiber, generally of very high quality. The maintenance of a felt in its original condition of softness, porosity, and uniformity of surface, and the holding of its nap are decidedly influenced by the treatment which it receives during its necessary reconditioning or washing to free it from the loading which it acquires during its use.

### Washing of Felts

A surprisingly large number of materials have been used for washing felt—simple alkalies, such as soda ash, trisodium phosphate, sodium metasilicate, soaps of various types, both high and low titer soaps, potash and soda soaps, sulphonated oils, soap substitutes, such as those formed by combining alkali with starch, sulphated fatty alcohols, naphthalene, sulphonic acid derivatives, soap and solvent emulsions, and various mixtures of all these. Dilute acid (as muriatic) is even sometimes used.

The use of strongly alkaline solutions in felt washing is to be strongly condemned. Wool fiber is rapidly attacked by alkaline solutions with resulting stiffness, harshness and loss of tensile strength. It is a fact that alkalies are today commonly used in felt washing. Some use soda ash because it is already available in most mills and is cheap. Sodium metasilicate has been recently promoted for all kinds of washing, and actually has been recommended in advertising for felt washing. It is extremely destructive to wool. A mill I know "fell for" this advertising and ruined a three hundred dollar felt the first washing. It came from the washer as stiff as a board.

In the past many types of cleaning compounds, based on tri-sodium phosphate, have been advocated for felt washing. These have had some success, principally because in their use no soap was left in the felt to cause later stiffening and waterproofing. Tri-sodium phosphate, as apparent from the figures in the table below, is much too alkaline to be a proper material for felt washing. Even when carefully used there is undoubtedly considerable weakening and harshening of the wool fibers.

For successful detergent action the alkalinity of a washing solution for wool should be at least pH of 9, which is about the degree of alkalinity given by a dilute solution of what is known as a "neutral" soap. Laundry research has indicated that the optimum pH for detergent processes is around 10.4 to 10.6. This degree of alkalinity may be safely used in wool washing if the temperature is kept low, at say 120 deg. F. Liability of damage to the fibers increases very rapidly, however, when the pH of the washing solution rises above 10. This is especially true as temperatures are increased. The following table showing the pH values at different concentrations of simple alkalies indicate their unsuitability for wool washing.

pH VALUES AT 25 DEG. C.

| Concentration, Per Cent | .25% | .5% | 1.0% |
|---|---|---|---|
| Soda Ash | 11.0 | 11.1 | 11.2 |
| Trisodium Phosphate | 11.5 | 11.7 | 11.9 |
| Sodium Metasilicate | 12.1 | 12.5 | 12.8 |
| Caustic Soda | 12.5 | 12.8 | 13.0 |

The comparison of alkalinity of several materials in 1/10 normal solution at 25 degrees is given below:

| | |
|---|---|
| Sodium bicarbonate | 8.4 |
| Borax | 9.2 |
| Ammonia | 11.1 |
| Sodium carbonate | 11.6 |
| Trisodium phosphate | 12.0 |
| Sodium Metasilicate | 12.2 |
| Sodium Hydroxide | 13.0 |
| Sodium Oleate | 9.5 |
| Sodium Sulf-oleate | 7.5 |

It is a fact that alkalies are used. This, in my opinion, does not demonstrate their applicability in the face of the above arguments but rather proves that indifferent results and higher felt costs are of less importance to some operators than to others.

### Soaps vs. Alkalies

Soaps are much better washing agents than alkalies. They have much greater penetrative effect and much greater dirt suspending value. The most widely used washing formulate, particularly in the laundry trade, consist of soap solutions, "built" with some mild alkali in sufficient amount to raise the pH of the soap solution from its normal value of about 9 to 9.5 up to the pH of 10.5 mentioned above as the optimum point for most effective detergent action. Alkaline solutions alone have no wetting or penetrating effect. These effects are proportional to the surface tension of the solutions and a measure of the latter is a simple method of evaluation of the relative wetting powers of different solutions. The surface tension of water at room temperature is around 76 dynes per square centimeter. As the following table will show, the addition of alkalies to this water has practically no effect. The addition of small percentages of colloidally active materials such as soap and sulphonated oils, however, have very pronounced effects, reducing the figure from 76 down into the range between 20 and 30. A combination of these with alkali gives the most effective washing formula.

SURFACE TENSION IN DYNES PER SQ. CM. AT 23 DEG. C.

| Distilled water—76<br>Solutions of | 1% | 2% |
|---|---|---|
| Soda Ash | 76 | 77 |
| Trisodium Phosphate | 76 | 76.2 |
| Borax | 76 | 76.2 |
| Sodium Silicate | 76 | 76.3 |
| Sodium Oleate | 28 | ... |
| Sodium-Sulphonated Oil | 33 | ... |

The relative wetting effects may be very roughly judged by floating pieces of felt upon the surface of the solutions to be compared and noting the seconds' time required for complete wetting and displacement of enclosed air and sinking of the felt.

Under the general heading of soap there are included many types: high titer soaps which contain a high proportion of high-melting fats, such as tallow or palm oil, in which there is a considerable percentage of stearic acid soap; or it may be a low titer soap, such as made from certain vegetable oils, as olive, and in which oleic acid predominates. The high titer soaps are completely unsuitable for wool washing. Even very dilute solutions gel when cold. They are difficult to rinse completely. They hydrolyze to a greater extent than the low titer soaps, and from them a higher per cent of fatty acid is adsorbed

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.
[1] Technical Director, Magnus Chemical Co., Garwood, N. J.

upon the wool fiber. The low titer soaps are much more freely soluble, rinse better, and hydrolyze less. When soap is used upon felt, it is this type which is most suitable, and the lower the titer of the soap stock used, the more suited is the soap for felt washing. Castor oil gives one of the mildest, most soluble and freest rinsing soaps.

For many years it was thought that potash soaps were more satisfactory for washing wool than soda soaps. This was particularly so in the wool-scouring trade. The importance of this point has recently led to considerable research, and the conclusion has now been reached that the soda soaps are actually more satisfactory for wool washing, by reason of the fact that they hydrolyze somewhat less than the potash soaps, and hence leave less adsorbed material in the fiber.

The use of potash soaps for felt washing today is very rare, as far as the writer's experience goes. In general, soda compounds are used.

Even the best soaps, however, have a serious drawback for felt washing. Some soap is always left adsorbed upon the wool fibers, even with excellent rinsing. This soap will react with lime hardness in the water used, or with alum in alum-treated water, or with any ingredients of this nature used in beater sizing. These form waterproof, insoluble films, coating the wool fibers, which greatly interfere with the satisfactory functioning of the felt.

The following figures are given in an article on "The Adsorption and the Retention of Soap by Wool," by Woodmansey which appeared on page 169 of the Journal of the Society of Dyers and Colourists (1919). It was shown that wool cloth was capable of adsorbing fatty acids from dilute olive oil soap solutions, (in the form of acid-soaps). The amount adsorbed under the conditions of the experiment varied from approximately one-fourth to one-half a per cent on the weight of the goods. One sample soaked in soap solution and briefly rinsed contained .86 per cent fatty acid. After again rinsing in cold water this was reduced to .80 per cent. After rinsing seven minutes in hot water this was reduced to .50 per cent; and a further hot rinse of thirty minutes only decreased it further to .41 per cent. The presence of some alkali in the soap solution reduces the amount of hydrolysis of the soap and cuts down the adsorption of acid soaps by the fiber. It has been found, however, that even under the best conditions of operation with soap that more satisfactory felt-washing results may be obtained with other materials. Soap substitutes, such as the alkali derivatives of starch, have been used but have never become popular. Recently, synthetic soaps or soap substitutes have been developed which avoid some of the drawbacks inherent in ordinary soap, in that they are proof against precipitation with lime and do not undergo hydrolysis. Such materials are the fatty alcohol sulphates and various types of organic sulphonic acids, which have appeared under a multitude of trade names. These latter materials are very effective but have been subject to a serious drawback of a very high price.

### Sulphonated Oils

The soaps of sulphonated oils are beginning to be used more. Sulphonation renders the soap free from the precipitation of insoluble soaps in the presence of hard or alum-treated water, diminishes the hydrolysis of the soap with the result that less of it is adsorbed by the wool fiber, and there is increased solubility and rinsibility. Properly selected sulphonated soaps in conjunction with a moderate amount of mild alkali forms a very satisfactory felt-washing material. To such washing mixtures are often added, in small percentage, various types of solvent which may have both detergent and penetrative effects. Pine oil, trichlorethylene, hexalin, etc., have been so used.

In general, it may be said that a washing solution which will thoroughly penetrate felt and can be completely rinsed afterward will be found satisfactory, as the actual removal of the dirt load is not in itself difficult. Given thorough penetration and wetting and complete rinsibility, you are pretty sure to have a good felt-washing solution.

Some use acid to remove lime soaps which build up in the felt. A number of cases which I have knowledge of have washed the felts in 1 per cent muriatic acid. Sometimes this is done right on the machine. This is a very harmful practice as it stiffens the felt and is apt to develop in it hard spots and, of course, the corrosive effect of the acid upon the machine is highly undesirable.

Sodium hexametaphosphate has recently come into vogue in the laundry and textile fields for the removal of lime soaps from fabrics. It is generally used as a rinse, following a washing with soap. Such treatment would undoubtedly benefit felts but the cost would probably be prohibitive.

The writer has spent a great deal of time in experimenting on different tests of felt-washing materials, and has in the past marketed some felt-washing soaps which would not be entirely free from criticism of some of the views set forth in this paper. Our trend has been, as we have continually gained experience in this field, to use less and less alkaline materials and it is desirable to have the rinses at the same temperature as the sulphonated type of soap and solvent. Comparison of typical felts washed under standard conditions indicates that we are on the right track. I have here, for inspection, several "before" and "after" samples of felt washed by various procedures which best show the great variance in results obtainable by different washing materials.

In general, for felt washing, we recommend saturating the felt with a 1 per cent solution of the washing agent at a temperature of 120 deg. F. When the felt is removed and run in a felt washer, the usual practice is a 20-minute wash period, followed by two 10-minute rinses with water at 120 deg. F.

Shrinkage is occasioned by sudden changes in temperature, and it is desirable to have the rinses at the same temperature as the wash. Felts should not be run in the washer longer than is necessary to thoroughly loosen the dirt, stock, sizing, etc., which is present in the loading. Once the fibers are thoroughly penetrated and wet by the solution, they will be freed and the rinses will carry them away.

One important feature in the care of felts, frequently overlooked, is in the drying. After a felt is taken from a washer and is not to be immediately replaced upon a machine, it should be hung up in such a manner that it can readily dry. The writer has seen cases where they were dumped in a heap on the floor. Wool, under such conditions, may rapidly deteriorate.

Where felts are washed upon the machine, the felt may be saturated with a spray from a perforated pipe across the width of the felt, which is fed from a stock tank operated by either air pressure or gravity. It is common practice to have such a stock tank of, say, anywhere from 50 to 500 gallons at some elevated point in the mill, where the solution can be fed to the points of use by gravity. It is an advantage to have an open steam pipe leading into such tank, both to warm up the solution and to aid in rapid dissolving of the added washing material, as the injection of open steam gives excellent agitation. Ordinarily, a 1 per cent solution is made up, which is approximately 10 pounds of each 100 gallons of water. Often the felt is roped up. After being run, the felt may be turned, re-

versing the edges. Rinsing is accomplished by turning on the showers. Such a washing on the machine is usually accomplished completely in 15 to 20 minutes.

Several large mills have found it most practical to have a large overhead solution tank piped to showers on each machine which are used for saturating the felt with cleaning solution. This is used not only for periodic reconditioning of the felt; it is also used when putting on a new felt, for softening it and shrinking it into place. One of the largest felt manufacturers recommends that cleaning solutions be thus applied evenly through a shower. One mill has a 100-gallon pressure tank on a four-wheel truck. This is transportable alongside any machine and the solution is sprayed on to the felt by compressed air which is charged into the pressure tank. Many mix the solution in an open tank or drum and saturate the felt by pouring the solution on with a pail or dipper. This is the most simple method and will, of course, work, but is not so convenient or neat as the previously mentioned procedures.

The samples of black felt passed around are of particular interest, showing what can be done with an extremely difficult washing job. This felt is used in making a black paper heavily filled with carbon black. The washing procedure which had been in use comprised the following steps:

1. Wash in a felt washer at 120 deg. F. with 1 per cent muriatic acid for 20 minutes.
2. Rinse.
3. Wash 20 minutes in 1 per cent soda ash.
4. Wash 20 minutes in 1 per cent soap solution.
5. Finish with two 10-minute rinses at 120 deg. F.

The comparison piece was washed for one 20-minute period at 120 deg. F. with a 1 per cent solution of Feltex; followed by two 10-minute rinses at 120 deg. F.

A board mill had been using a built soap for washing felts. These were strapped up and washed on the machine. This was quite a job and consumed considerable time. With a new top felt they would average around fourteen days' service, sometimes running one or two days more, or less. Usually, after running about six, hard spots would appear in the felt, requiring washing. The last few days of the life of the felt, the machine speed would have to be considerably decreased. At this stage often a dilute solution of muriatic acid was used to open up the felt. While effective in doing this, there were several drawbacks. For a short time the acid would give the paper a purplish cast and cause it to become brittle. If there were any lime or similar soaps held in the felt, fatty acids would form and coalesce to oil spots, which would affect the paper, and of course the corrosive effect of the acid treatment upon the machine parts was undesirable. These drawbacks were overcome by building an overhead tank with a shower, to supply the solution to the felt at the point where it would have maximum contact with it before being removed by the water shower. A 1 per cent solution of our product was sprayed upon the felt while in operation and it was found that this immediately allowed the machine to be speeded up to regular running speed. The free rinsing qualities of the cleansing solution and its mildness cause no effect upon paper. This treatment increased felt-life by one week. In a test with this material it was noted that on one washing where the vacuum gauge beforehand read 10 inches, following such washing right on the machine, the gauge had dropped to five inches.

### Slime Removal

Another cleaning problem in paper mills which is of considerable importance, and to which we have paid considerable attention, is the removal of slime from the equipment. In recent discussions of this problem in the journals, it has been stated that millions of dollars have been lost annually to the pulp and paper industry because of slime difficulties, and that slime is the greatest obstacle in developing closed white-water systems. A great deal of time and labor is expended in necessary periodic cleanups to remove slime formations. It is important, in keeping the costs of these operations at a minimum, to use the most effective means.

Slime is a complex material which usually varies greatly from mill to mill. It is generally a composite of true slime formed by bacterial or fungus growths and also algae from micro-organisms in the water and the decomposition products resulting from their action upon paper stock, combined with enclosed pulp and size. Oftentimes rust in appreciable proportion is included from the pipes or from dissolved iron in the water which has been precipitated. A bacterium, known as Crenothrix, the iron bacterium, may be a factor in depositing iron hydroxide in the slime. Slime troubles are apt to be most acute during the summer months when warmer temperatures promote the more rapid development of these biological slimes.

One writer on slime control has classed slimes as of three sources: (1) Biological slime, a gelatinous mass caused by the growth of colonies of water bacteria in which fungi and algae accumulate and grow. Mixed with this, there may be stock, dirt, or foreign matter in the water.

(2) Spatter, which consists of fiber or stock often combined with biological slime, which accumulates on dry surfaces under the machines and in the white-water pits and tanks.

(3) Colloidal slime, consisting of the accumulation and precipitation of colloidal material in the system.

Such slime accumulations have two serious results. They may build up to such proportions as to impede the flow of liquid or of stock; and the occasional disengagement of slime results in slime specks or spots in the paper.

One attack upon this problem has been to sterilize incoming water by the use of chlorine or chloramine. This is effective in cutting down bacteriological slime growths but it evidently does not completely eliminate slime troubles, as many mills which use this process still use slime remover also for periodic washups of equipment. Such washups are of course, however, necessary only at less frequent interval.

For the removal of slime accumulations by softening them and loosening them from their support so that they may be readily and completely flushed out of the system the same general considerations apply as in the cleaning of felt, which we have just discussed. A cleansing solution of highly penetrative properties is the important consideration. It is also desirable that this cleansing solution have some bactericidal property so that the chances for nuclei remaining in the system for the propagation of fresh bacterial growths is reduced to a minimum.

Some mills attempt to clean out their systems by running through them strongly alkaline solutions. These are effective in some degree but generally far from being satisfactory. Alkaline solutions, in contact with bacteriological slimes harden or toughen them to "liverlike" formations, which are more difficult to remove than the original form. These latter, when they do break loose, form a most troublesome sort of spots in paper.

Our attack upon this problem has been from the angle of providing a solution of highly penetrative properties but of low alkalinity, which will penetrate, soften and loosen such deposits, making their subsequent removal by flushing a simple matter. This procedure works very well. Very considerable savings in time and in labor have been

effected by the application of this principle to slime removal, and the results so obtained are the most thorough, which of course leads to the maximum enjoyment of the benefits attendant upon slime-free operation.

A simple experiment performed by the writer for a paper company, who was interested in the use of slime remover for renovating sand filters was very instructive. We filled two 12-inch glass funnels uniformly with slime-loaded sand removed from the filter bed. A slow stream of water was allowed to drip on to these funnels at a rate which just maintained a constant head of water by keeping the funnel full to overflowing. It took 50 seconds for them to pass one liter of water. The bottoms of the funnels were then plugged and the sand filled with a 1 per cent solution of slime remover in one funnel and a 1 per cent solution of caustic soda in the other. After standing for five minutes, the sand was gently backflushed by running a stream in from the bottom of the funnel. It was apparent to the eye that large quantities of slime had been loosened in one and but very little in the other. The backflushing from the sand treated with slime remover was opaque, the slime was so finely deflocculated and suspended. After backflushing, the rate of flow was again measured. In the sand treated with slime remover, it was now found that one liter of water was passed in 24 seconds. In the sample washed with alkali, the rate of flow was improved by only 10 seconds.

It may be of interest to comment that in a large proportion of mills which we have contacted, on our initial contacts, particularly with the office end or purchasing department, we were usually informed that their mill had no slime troubles. Undoubtedly this statement is always made in good faith. Nine times out of ten it is incorrect, however, and mills who had no slime problems had later been found to consume many labor hours in taking down and brushing out pipe lines, and scraping the walls of equipment, or drilling or picking out holes in suction rolls, etc.

I am not going into full details concerning the various phases of slime removal. These were covered in some detail by one of my associates at a meeting of your society in 1931, and were published in the "Paper and Wood Pulp News" of November 28th, 1931. The following brief statements will summarize some of the important points.

The time to make the cleanup is when the machine is shut down. If it is thoroughly cleaned while wet, there is no slime or stock left to harden in the pipes or on the walls of equipment. In the case of shut-downs for short periods, it is better to leave the beaters and pipes full or wet. Many mills find it advantageous to make it a standard routine practice to clean out the entire system at definite intervals. These intervals will, of course, vary with the type of work and the quality of water, and to some extent, with the season. The interval may be anywheres from one to six, or eight weeks. Dilute solutions are made up by filling the beater about half full of water, turning in steam until it reaches 140 to 180 deg. F. (the hotter the better). Usually about ten pounds of slime remover are used to every one hundred gallons of water. This solution builds up considerable foam in the beater, so the dump valve is promptly opened into the beater chest, and from there it is allowed to flow through the pipes to the stock chest, where it is picked up by the Jordan engine and sent to the distributing box. The valve to the paper machine is left closed so that the solution is by-passed back to the stock chest. After circulation for about ten minutes in this manner, the valve is opened to the paper machine and the solution circulated over the wet end, the felts previously having been raised. During this circulation period, much of the slime will immediately free itself from the surface on which it has been suspended and built up. What remains is so softened and loosened that it is readily removed when the equipment is hosed down after running out the cleaning solution. Sometimes the same solution is dumped to the head boxes, where it is re-heated and used to clean the screens. However, in most mills a separate solution is made up in the head boxes or screen tanks for this purpose. At the finish, a steam or air hose will blow the slots entirely free without the use of picks. Cleaning in this way has also been found helpful where frequent changes of color are being made.

The cleaning of suction rolls is one valuable application for slime remover. If a small amount of concentration solution, say four ounces to a gallon of water, is poured over a suction roll and allowed to soak for about five minutes, this will sufficiently loosen the plugged material so that it may be simply blown out with a steam hose. This dispenses with a long and tedious hand job.

For cylinder type machines, the solution is usually mixed in a large capacity elevated tank, heated by an open steam line. A centrifugal pump puts the solution under pressure through a pipe line connected with the cylinder showers. Valves are so provided that any one of the cylinders may be cleaned. From the cylinder vats the solution is picked up by the pump and re-circulated through the system. If proper precaution is taken to keep the cold water showers on the felt, the solution transferred from the cylinders is sufficiently diluted and rinsed out, so that the felt is not adversely affected. This precaution is necessary, however, since the slime remover solution in itself is alkaline, and in concentrated form would be injurious to the felt.

In general, cleansing action is the result of a series of physical processes, and although accomplished with materials classed as chemicals, in the main, the results are of a physical rather than a chemical nature. Cleansing usually occurs in the following steps:

1. Wetting of the surface and penetration of the dirt by the cleaning solution.
2. The emulsification of the dirt and grease by the combined action of the dissolved cleaning material, agitation, and heat.
3. Stabilization of the emulsion or dirt suspension by the colloidal matter present in the cleansing solution.
4. Dilution of the emulsion or suspension, and its removal in the rinse. Dilution due to rinsing must not cause the suspended dirt particles to drop out of the solution and redeposit upon the surface being cleaned.

In considering the above several steps, it is obvious that thorough wetting must be the prelude to cleaning. It is this point, in particular which makes the great difference in the speed and thoroughness of washing with a proper cleansing agent as compared with simple alkaline solutions. This is obvious from some of the figures given earlier. A piece of felt which may wet out completely in each individual fiber in 30 seconds, with one solution, may require 30 minutes with another, and cleansing action cannot go on until complete wetting has been achieved.

## Mechanical Pulp Producers Form Cartel

WASHINGTON, D. C., June 5, 1935—A majority of the Norwegian, Swedish, and Finnish mechanical pulp producers have formed a production and sales cartel, similar to the sulphite pulp cartel which has successfully regulated production and market conditions during the past several years, according to recent reports from Consul General Thomas H. Hevan, Oslo. The total export quota for the three countries has been placed at 1,750,000 metric tons (metric ton = 2,205 pounds), of which the Norwegian quota is 650,000 tons, the Swedish 600,000 tons, and the Finnish 500,000 tons. Norwegian exports of mechanical pulp in 1934 were 696,249 tons.

# Improved Equipment for Tissue*

By J. E. Goodwillie[1]

In discussing modern tissue machines, it might be well to limit ourselves to a consideration of those commonly known as Fourdrinier, Yankee and Harper machines, but to include also machines for the manufacture of such grades as toweling, because of the rather close association of tissue and toweling manufacture in the industry. While the range of operating conditions encountered is wide, there are the principal characteristics common for all of these units of comparatively high operating speeds and formation conditions requiring very careful handling to secure the desired results.

### Head Box and Slice

Large water quantities are usually called for on these machines, the head box consistencies falling in the range from one tenth of one per cent to three or four tenths, and older practice very often dictated large flow boxes ahead of the slice. In more recent years, the value of large boxes has been questioned, and it now appears that a great number of water passes ahead of the slice is not necessary for good results. On the contrary, good results are being obtained with boxes employing only one bend or reversal in water flow between the point of entry to the box and the slice. The prime requirements in the head box seem to be: first, entrance conditions in the connecting piping or flumes which will not produce violent surging and boiling in the box; second, reasonable velocities to permit securing quite uniform flow to the slice, and third, absence of all stagnant pockets or sections in the box where the fibers can become clotted into balls. It is scarcely necessary to remark here that the preparation of the stock and its dilution with the white water flow must be such as to secure uniform and complete dispersion of the individual fibers in the water flow and that the type of fan pump and its installation conditions must preclude any surging, or the entrainment of air in the flow.

In order to secure the best formation conditions on the wire, it is essential that the slice be properly designed and have a degree of flexibility so that the flow of stock and water can be run onto the moving wire dead level, and without disturbance. The degree to which the objective is reached can usually be judged by noting the appearance of the flow just beyond the slice, and by the uniformity of the finished sheet weight. When the stream issuing from the slice presents a troubled appearance, with side currents and with a marked disturbance at the point of contact between the stream and the moving wire, it is safe to assume that the formation is being impaired by slice conditions. The flexible lip type of Beloit slice has proved very successful in this application because the leveling edge presented to the stream is continuous across the width of the machine, is readily adjustable to secure uniformity of sheet weight, and because it regulates flow without disturbing the stream. It is made adjustable in the machine direction, and by carefully locating its position with respect to the leaving edge of the apron, a nice control is secured over the angle at which the stream meets the moving wire.

### Rolls and Shake

It can safely be said that in many machines the action of the table rolls is such as to cause serious damage to the forming sheet. At higher speeds, it is not uncommon to see a heavy spray or shower thrown up from the wire for quite a distance on the table section, this being caused by table rolls disturbing the formation, causing pin holes and other kindred sheet defects. In older machines, this effect is often traceable to table rolls improperly balanced throughout their length, rolls of insufficient strength to withstand the stress of high speed operation, and rolls that have become rough or pitted by the corrosive and erosive action of the white water. The first requirement for good tissue machine operation is that the table rolls be mechanically right, and our experience with high speed tissue machines would indicate that too much stress can hardly be laid on this point. We have developed a roll having an aluminum tube body which gives great stiffness and rigidity in operation together with light weight, the aluminum being protected from the action of the white water by a micarta or rubber covering. Experience with this type of construction extending over a period of years and under a wide variety of operating conditions indicates that table rolls properly constructed in this manner can be relied upon to give excellent running conditions almost indefinitely. It is necessary, of course, to provide good anti-friction bearing equipment, well housed to protect the bearings from water, if creditable operation is to be secured at higher speeds.

Even with a good surface condition secured for the table rolls, additional steps must be taken for good high speed operation. Due to their high rotative speeds, the rolls throw water back into the wire and often contribute largely in this way to poor sheet conditions. There are several ways in which this situation can be improved or largely corrected, probably the most effective being special deflectors which have been installed quite recently on several machines. These deflectors are of very substantial construction to insure maintaining correct positions during the stress of high speed operation, and can readily be set to catch practically all of the thrown water which otherwise would strike the wire again.

Wherever the characteristics of the sheet being formed are such as to permit carrying water well down the wire, the use of the high speed shake has proven effective in closing up tissue sheets and materially improving the formation. In order to be effective, it must be capable of shaking the table section very rapidly—this means there must be great strength and, at the same time, the moving parts must be of minimum weight to keep the stresses set up within reason. The Beloit high speed shake equipment is too well known to require discussion in this paper, but it might be of interest to note that the demand for further improvement in the light weight papers is broadening the application of the shake here in much the same manner as in other sections of the paper field.

Wire suction boxes for tissue machines need somewhat more attention than boxes for many other grades of paper for the reason that most tissue machines operate with pick-up felts and it is essential to bring the sheet to the couch with a correct water content if best operation is to be secured. In order to secure control over the vacuum in these boxes and consequently control the degree of water removal, the water and air flow from each box should be separated, provision being made for removing the water as it comes and controlling the air flow to the vacuum pump. From the standpoint of obtaining best operating conditions and maximum life of wires and suction box covers, these boxes should be oscillated. In late Beloit

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.
[1] Engineer, Beloit Iron Works, Beloit, Wis.

designs the boxes are mounted on micarta springs, a motor drive is used, and other refinements have been added—the net result being that the boxes are oscillated smoothly and steadily. The various operating parts are not subject to rapid wear and require very little maintenance attention. A wide variety of suction box covers have been tried and while we feel that improvements will continue to be made as long as suction boxes are used under Fourdrinier wires, so much progress has been made that it is safe to say the old style wooden covers can be replaced very profitably.

**The Couch Roll and Presses**

Couch rolls of the Yankee, Harper and suction type will all be found in operation on modern tissue machines and each has its correct field of operation. The first two are operated solely with pick-up felt arrangements, of course, and the suction couch may be operated with or without the pick-up felt. The Yankee type, which took its name from the couch arrangement that had wide application on Yankee machines, usually involves a smooth bronze shell bottom couch roll and a rubber covered top couch roll of comparatively hard surface. The top couch roll is operated on the oncoming side of the bottom roll vertical center line. While too rigid limits should not be set on the various fields of application for the different couch arrangements, it can be said that the Yankee type has its best operation on the well hydrated and closely formed sheets of lighter weights which are usually run at somewhat slower speeds than the freer and more absorbent sheets. The Harper type of couch arrangement, also taking its name from the machine with which it was associated, involves a bronze shell bottom couch roll having circumferential grooves turned in its surface. The top couch roll is rubber covered with a comparatively soft stock and is operated on the off-going side of the bottom roll vertical center line. This type of couch arrangement has been very successful when properly arranged and correctly applied. It functions particularly well on high speed machines with the freer types of light weight papers.

The suction couch has been applied with fine results on a number of multiple-purpose machines and is very effective on sheets of about 15 pound weight, operating without a top felt pick-up at the couch. It is also very effective on toweling sheets and can be employed to advantage on machines required to handle both tissue and toweling. In this connection it should be noted that the use of the suction couch and no contact between sheet and top felt until the first press nip is reached results in a double reduction in water to be handled at that press. The suction couch removes much more water than the plain couch and the top felt can be run much drier. In addition, the suction couch runs more safely and there is no necessity of retaining a closely limited water content in the sheet as with pick-up operation. Where top felt pick-up at the couch is desired, a special light weight top couch roll can be run on the suction couch; with this type of operation the vacuum carried is usually reduced or cut off entirely. Another type of top felt pick-up at the suction couch involves the use of felt rolls to carry the top felt in such a position as to cause it to cover the suction area of the roll without having any roll contacting the suction couch shell. This arrangement is effective on some sheets and is usually operated with full vacuum on the suction roll.

There have been several recent instances where a careful study of mill conditions showed the couch arrangement in use to be incorrect for the papers handled. When the necessary changes were made, very fine improvements in the character of the sheet and the economy of operation were shown.

The press section of a tissue machine must be capable of exacting performance if the machine is to function correctly. The moisture content of the sheet and felt coming to the press is usually quite high, this condition being dictated by the requirements at the couch where the sheet is taken from the wire by the pick-up felt. We are all familiar with the fact that proper pick-up conditions will not be had if the sheet and felt are too dry. On the other hand, the moisture content of sheet and felt leaving the press must be low enough to give satisfactory conditions at the receiving drier, or wherever the sheet is removed from the pick-up felt. If the moisture content is high, there is grave danger of crushing in the nip where the sheet is removed from the pick-up felt. Furthermore, a wet sheet is very difficult to handle in the subsequent drier passes, and the character of the sheet will be impaired if it is not dry enough. From a consideration of these conditions it will be apparent that the press of a tissue machine has its work cut out for it, especially in high speed operation. Into this situation, the rubber covered suction press roll fitted with remarkable success. By proportioning the width of the suction box in the roll to suit the moisture conditions of the oncoming felts and sheet, it has been possible to handle extremely high water quantities at the press, occasioned by special sheet conditions and unusual machine arrangements, and do so at high speeds without crushing or other press difficulties.

With a wide range of experience in the installation of rubber covered suction press rolls on tissue machines to draw from, we feel very safe in assuring you that the application of Beloit suction press rolls to existing or new machines will result in high machine efficiency, maximum production, and important savings in clothing costs. Blowing and crushing at the press nip have been practically eliminated. The ability to send a drier sheet to the drier section together with safer operation have resulted in materially increased production. Compared to plain press operation, the suction press usually shows a machine production increase well over 10 per cent and often 25 to 30 per cent. Due to the conditioning action of the suction roll on the felts and the improved nip condition, it is not unusual for the felt life with these rolls to be about three times that with plain presses. This factor alone is, of course, an improvement which makes the suction roll a very profitable investment.

From the standpoint of water removal capacity, the suction press, properly applied, has proved itself to be at least the equivalent of two plain presses. For this reason the majority of tissue machine installations have had but one press. It appears that for maximum speed on the heavier grades in this class, and particularly for sheets in the toweling class, a second suction press could well be installed. Too much emphasis cannot be laid upon getting as dry a sheet as possible at the point of removal from the top or pick-up felt, particularly when the sheet is creped, and the improvements at this point together with the increase in machine capacity secured by the additional water removal are the factors which govern the selection of the suction second press.

Much has been learned in recent years about what might be termed auxiliary press equipment. Wringer rolls when correctly built and placed are extremely important factors in keeping the bottom press felt clean and properly conditioned. They must be sturdy enough to run perfectly true, have the right rubber covering to remove large quantities of water from the felt, must act uniformly across their entire length and for good felt life should certainly be

mounted in roller bearings. A drive for these rolls is sometimes advisable. Guard boards for top felts are often responsible for poor felt life; by carefully selecting the position for their installation and by the use of special materials for the board itself, very gratifying improvements have been accomplished. Where high pressure showers are used on felts, the wisdom of oscillating them has been established—much longer felt life and more uniform moisture conditions are frequently obtained by this improvement.

Higher degrees of dryness secured with the suction press permit more effective work being done at the receiving drier or the Yankee drier. To take advantage of this situation, we have been giving a great deal of attention to the surface conditions of driers, starting with special metal mixtures to insure a smooth, hard surface, and one which will function satisfactorily for exacting creping operations. Large Yankee driers are being furnished for 75 pounds working pressure, the new high pressure design being the result of an intensive development program during which hydrostatic test pressures as high as 200 pounds per square inch were carried in a 12-foot diameter drier. From present indications, the use of the higher pressures made possible by these new driers will materially increase the producing capacity of Yankee tissue machines. In contrast with the older Fourdrinier machine arrangements where the sheet was frequently removed from the pick-up felt on a press roll, the use of 48-inch and 60-inch diameter receiving driers has proved to be much more effective.

For creping operations, Beloit has developed a new type of doctor back and mounting which has made it possible to produce a better and more uniform sheet, and to do so with a very gratifying improvement in condition of the drier surface. The doctor back is of special design and is carried in anti-friction bearings in such a way that calibrated loading springs can be effectively used to get the desired contact pressure at all points across the drier face. The entire assembly is suspended on micarta strip springs and provided with equipment for oscillating the blade smoothly and steadily.

Cylinder drier sections of the newer machines show many interesting improvements over earlier designs. The Beloit enclosed silent chain drive has made it possible to run drier sections in the speed range of 1000 feet and upward so quietly and steadily that one has to look twice to be sure the driers are actually running. The machine is completely accessible on both front and back sides; every facility is given for observing the running sheet, for proper ventilation of the section, and for the inspection of all bearings.

There is not time here for discussing in any detail improvements in reels and winders for tissue machines. It might be noted, however, that the modern tissue machines can have reel and winder equipment that will function at high speed with very little attention from the operators. Beloit improved two-drum winders are functioning at 2500 to 3000 feet paper speed in a number of mills, making perfect rolls with so little attention that it seems entirely feasible to run them at much higher speeds as soon as the necessity for doing so arises. Even on the widest tissue machines, these winders can turn out sets of large diameter, well-wound rolls in the toweling or napkin widths with almost no waste and keep well ahead of high-speed machines.

# The Suction Felt Roll–What It Is and How It Performs*

By O. C. Cordes[1]

The suction felt roll, as its name implies, functions to clean and condition the felts on paper machines. It does this in a manner requiring no friction drag on the felt and only pull enough from the felt to turn the roll. Since the roll shell is mounted on anti-friction bearings and the packing strips are set with but a light tension, just enough to obtain an efficient seal, the amount of power required to turn the roll is negligible.

The Downingtown suction felt roll consists of a centrifugally cast bronze shell drilled with the Downingtown spiral drilling, which prevents uneven wear on the packing strips and consequent scoring on the inside of the shell. The suction box is of cast iron and is provided with a relatively narrow opening which permits a large volume of air at a high velocity to pass through the felt, entraining the surplus or free water and the foreign matter during its passage. The packing strips of a phenol base composition are mounted on a spring support which insures even pressure over the entire length. Adjustable spring-supported deckles are provided at each end, which can be deckled in a distance of about 4 inches and will amply take care of the normal felt shrinkage and tear off. The roll shell is supported on anti-friction bearings which are mounted on the stationary journals of the suction box. The anti-friction bearings are enclosed in water-tight housings which are carried in outer housings with integral feet for fastening to the machine frames. Provision is made for turning the suction box to the desired angular position. The roll requires no drive; as it is turned by the felt in the manner described above.

The volume of air and the vacuum in inches of mercury depend on:

(a) The width of the suction felt roll drilled face.
(b) The type of felt.
(c) The position of the felt on the machine.
(d) The dryness required.
(e) The speed of the machine.

In most cases the amount of air carried in the present suction boxes is sufficient for the suction felt roll.

The suction felt roll, because of its peculiar and novel construction in contrast to other felt cleaning devices, cleans and conditions the felt the entire way across continuously and, because of the spiral drilling, all parts of the felt are reached and thus streaking is prevented and eliminated. The fact that the felt is not dragged across the suction area; but merely passes over it at the same rate of travel as the shell, prevents the felt nap from being

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.
[1] Sales Engineer, Downingtown Manufacturing Company, Downingtown, Pa.

worn off and ironed or matted down. This keep the surface or nap like that of a new felt and reduces the tendency of the felt to fill up.

The roll as installed on the machine must be so located that at least a 90 degree felt wrap is obtained, and that the face of the roll is in contact with the paper side or outside of the felt. A good heavy spray shower should be applied to the paper side of the felt approximately 10 inches ahead of the nip. This latter condition is easily obtained on a board machine; but the press sections of a Fourdrinier machine present a more difficut problem, as the excess shower water is often hard to handle and keep from getting onto the sheet particularly in the case of reversing presses.

Where rubber covered suction rolls are installed on the press sections of a Fourdrinier machine, these in themselves will usually keep the felts in excellent condition making the installation of felt cleaning devices unnecessary, except in extraordinary cases where a filler or sizing compound of unusual characteristics is present.

One of the outstanding advantages of the suction felt roll is its adaptability. It can be put in the machine in almost any position that an ordinary felt roll can be placed. The roll does not have to be removed when changing felts; as it contacts the outside of the felt. Also, it is never necessary to break the suction connection; as this is usually on the back side of the machine.

In making a suction felt roll application, the following must be taken into consideration:

(a) Paper speed in feet per minute, minimum and maximum.
(b) Present life of felt in operating days.
(c) Present tonnage per felt.
(d) Location of felt and width.
(e) Present conditions surrounding the felt operation and run.
(f) Kind of paper being made.

Depending on the condition of the machine parts and the class of stock being handled, the felt life has been found to increase from 20 to 100 per cent by the application of the suction felt roll. In most cases the felt records show this increase very conclusively over comparative periods of operation.

Here is a partial list of some of the reports from various mills:

(1) On a board machine making news lined chip and test liner, the life of both the top and bottom felt was increased 30 per cent.
(2) On a Fourdrinier machine making fine papers, the 1st press life was increased 33 1/3 per cent and the felt is never washed nor roped during its entire life. Formerly this was done after each 8 hour tour.
(3) On a tissue machine using a pick up felt and bottom felt through the 1st press, the felt life was increased 100 per cent and the machine was speeded up considerably due to the drier condition of the felt.
(4) On the conventional board machine making patent coatings board and a wide variety of other lined boards, the tonnage on a short top felt was increased from 1500 tons to 3000 tons.
(5) On a Fourdrinier machine 2nd reversing press making a heavily loaded book sheet, the loading of which is inherently difficult to handle and which has an affinity for sticking to felt fibers, the suction felt roll showed some improvement of the felt condition, but not enough to warrant the investment.
(6) In another case on a board machine, the suction felt roll was applied to a plate felt on the press section. The felt was so close that sufficient air could not be passed through it except at a very high vacuum, requiring a large pump and motor which made the power costs excessive.

Summing up this article, it can be said that the suction felt roll operates on an inherently correct principle, which is a decided improvement over other types of felt conditioning devices, and is an outstanding contribution to increased economies in the manufacture of paper from the angle of reduced felt costs and improved production; not mentioning the effect due to reduced effort on the part of the machine personnel. Taking into consideration the advantages to be obtained, the suction felt roll can be made to pay for itself in a very short time.

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## Atlantic City TAPPI Plans Progressing

With nearly every member of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry assigned to and actively engaged in the details of the fall meeting of the Association which is to be held at the Ambassador Hotel, Atlantic City, on September 18 to 21, 1935, one of the most successful conventions of the organization is expected.

Room reservations at the Ambassador are being made at a rate that indicates that the attendance will be large and representative of the pulp and paper industry. Many are making plans to spend their vacation at this wonderful resort. In this regard it should be kept in mind that the extremely low rates that will apply cover several days before and after the convention. These rates are about one-third the regular rates. It is doubtful if the summer can be terminated in a more refreshing and invigorating way than by spending a week or more on the delightful New Jersey shore.

Because of the rapidly increasing proposition of wives and families of members and their friends who are attending TAPPI fall meetings very special plans are being prepared for their entertainment.

Mrs. Harvey P. Cannon has been appointed chairman of the Ladies' Committee and since she has attended previous TAPPI meetings and numerous other conventions, she knows what she needs to know about providing an enjoyable program that will make the Atlantic City meeting memories live long in the minds of the many ladies who will attend.

Mrs. Cannon will be ably assisted by a committee of capable and enthusiastic women consisting of Mrs. E. J. Albert, Mrs. J. d'A. Clark, Mrs. H. S. Schwalbe, Mrs. F. E. Winslow, Mrs. W. M. Shoemaker, Mrs. W. R. Maull, Mrs. B. M. Thomas, Mrs. G. E. Landt, Mrs. J. C. Schmidt, Mrs. J. C. Harper Jr. and Miss Lois Hans.

A meeting of this splendid committee was recently held in the Onyx Room of the John Wanamaker Store, Philadelphia. The program is to be planned in such a way as to provide for proper relaxation as well as the other activities that permit the usage of surplus energy. Included in the program and on the day preceding the Atlantic City meeting, provision will be made to view the historic shrines of Philadelphia and vicinity. At Atlantic City there will be bathing in the surf and in the famous Ambassador pool, fishing, golf, bridge, sightseeing and visits to the outstanding attractions. In fact, there will be activities to suit every wish. Ladies will enjoy the TAPPI Atlantic City meeting.

Since the seashore and the ocean are important attractions hotel reservations should be made at the Ambassador as soon as possible. The choice room locations will be made in the order of reservation. The rates for single rooms are $3 to $5 and for double rooms $5 and up. The number of minimum rate rooms is limited and should be reserved as early as possible.

# Great Northern Grinders*

By Geo. K. Walker[1]

When we decided to modernize our grinder room, where we had twenty-nine three-pocket grinders using two foot wood, we endeavored to find out the type of grinder that would be the most suitable to our particular mill. After investigating all types of grinders, we decided that the Great Northern type was the best suited to our conditions. After having had nearly one year's experience with eight of these grinders, with each pair connected to a 2400 h.p. waterwheel, we feel justified in giving the Trade the benefit of our experience.

I assume all of you have a general idea of the design of and method of handling wood to this type of grinder, as they have been advertised extensively in the trade journals, so will just give you our personal opinions as to the advantages of this grinder over other types for our particular condition.

I believe this grinder has practically all of the advantages of the magazine and caterpillar type, with very much less building expense for wood storage and less actual cost of the grinders themselves. We have found that four men can change a stone on this grinder in four hours, which, I believe is a saving over the magazine grinders.

We understand this grinder was developed and perfected in the East Millinocket mill of the Great Northern Paper Company, where my good friend Charlie Burr, with his pulp maker and engineers, spend many months of hard work and some headaches before this grinder became the practical machine that it is today. In addition to the tireless efforts of these experienced mill men they had the assistance of one of the most efficient machine builders' organizations, headed by Mr. Waterhouse, who certainly know how to build service into a piece of machinery.

These grinders were subjected to the worst kind of abuse on the job, to show where the weak spots were, and when the weaknesses were discovered by the most severe tests, they were reinforced and made strong enough to withstand more punishment than they would ever get under normal running conditions. The result of which means—a machine that all who had a part in developing and building have a right to be proud of. After one year's continuous operation of these grinders we have been unable to discover any one thing wrong with them. In other words, they are designed and built to give long life and with the least amount of repairs, and the worries and headaches have all been eliminated by our friends of East Millinocket, Maine, and the Montague Machine Company, in Turners Falls, Massachusetts.

On one pair of grinders we have two Carborundum stones, comparable to a Norton 60 N. On four grinders we have four No. 60 N Crystolon, making news print. On the last two we have two Norton No. 50; on these two stones we are making hanging and colored specialties. All of these stones require sharpening once a week. All are equipped with a Tyco temperature control, which enables us to control the freeness of our pulp between sharpening by raising or lowering the temperature as the freeness requires. We are using a No. 4 straight cut burr and a 14 cut diamond point burr. We have found, with this combination of burrs on a Norton or Carborundum stone, we can get any quality of pulp that is required for news, hanging and all ground wood specialty papers.

It may be interesting—to at least a few of you—to know just why we believe this combination of burrs is superior to most other methods. We have found, on even the manufactured stones, that a burr having more than four cuts to the inch will cause the stone to break out between the marks made by the burr and become very rough, which makes slivers and wastes costly material.

The writer had an opportunity recently to observe the face of a Norton stone which had been sharpened with a No. 8 Spiral burr and taken out for repairs. This stone has less than forty percent of the grinding surface intact, owing to the creases from the burr cutting away about twenty-five per cent, plus the breaking down of the edges between the marks of the burr. A No. 4 straight cut cuts away about twelve and one-half per cent of the surface of the stone and the remainder of the stone is left for grinding wood. Then, with a No. 14 diamond burr used to keep the eighty-seven and one-half per cent of the surface of the stone in the proper condition to make the grade of pulp required for the kind of paper being made, we believe we are able to get the highest degree of efficiency. The use of a spiral burr alone does nothing to the surface of the stone between marks; it only makes creases in the stone and allows the surface which remains to become glazed or rough, which tends to increase power and the rough edges tend to make slivers. Our stones, by actual measurement each month, show less than one-eighth inch wear in diameter, which gives us a stone cost, per ton, of between nine and ten cents.

In connection with this paper, I am submitting the result of a test made on our grinders by one of the engineers from the Research Department of the International Paper Company, which shows the results obtained by varying the temperature of the stock on the grinder. The writer believes the temperature control is one of the most important improvements in grinding pulp that has been developed in the writer's memory. Our eight grinders, grinding 160 tons of pulp, require two operators feeding wood and one man passing the wood to the water trough of the grinders on each tour. This, I believe, compares favorably with the labor when magazine grinders are used. When making 160 tons of pulp on these stones, we make from three to four tons of screenings which we will refine with a Haug refiner, using 40 h.p. This refined pulp goes back in the system and is suitable for news print paper. I have a copy of the additional report submitted, which any of you can look over and shall be glad to answer any question that any of the members may wish to ask.

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.

[1] Superintendent, Finch, Pruyn & Co., Inc., Glens Falls, N. Y.

## Lawrence Standard Side Suction Pumps

The Lawrence Machine and Pump Corporation, 371 Market Street, Lawrence, Mass., announces the issue of its bulletin 202 describing the "Lawrence" Standard Side Suction Pumps.

This bulletin describes fully the construction of pumps of this type both belt driven and direct connected, and their various applications. It has several excellent cuts and tables showing the range of capacities and heads for the different sizes.

On account of the many possible applications for pumps of this type this bulletin should be of special interest to engineers, superintendents and construction men.

# Printers' Paper Troubles Encountered at the Government Printing Office*

By M. S. Kantrowitz[1] and E. W. Spencer[2]

The Government Printing Office purchased 55,578,000 pounds of paper during the fiscal year ending June 30, 1934. This quantity of paper included 86 grades varying in quality from newsprint to the highest grades of ledger and index, and from light weight tissue to heavy weight binders' board. Each grade is purchased on technical specifications covering a definite quality for each specific use. The employment of specifications for purchase and the testing of deliveries for compliance with specifications insure obtaining uniform qualities of paper stock.

However, certain unpredictable difficulties arise in its use under operating conditions. Printers' paper troubles in the Government Printing Office have their origin principally in variations in atmospheric conditions and in certain conditions inherent in the paper itself.

### Troubles Due to Atmospheric Changes

Much has been written in the literature on the subject of paper troubles experienced from variations in the relative humidity of the pressroom. Such changes in atmospheric conditions are largely responsible for expansion and contraction of paper, curl, wrinkles, wavy edges, cracking of coated paper, and static electricity; all of which seriously interfere with pressroom production.

Paper, being composed of a felted mass of minute vegetable fibers, is hygroscopic due to its capillary structure and therefore susceptible to humidity changes. It absorbes or gives up moisture with every change in the amount of water contained in the surrounding air relative to that contained in the paper itself.

Expansion and Contraction.—Troubles arising from changes in atmospheric conditions apply to all types of paper. The Government Printing Office purchases a considerable quantity of calendered tag paper for use in printing automatic accounting machine cards. The requirements for these cards are very exacting. They must show a minimum of expansion and contraction and must not curl. Expansion or contraction of the paper stock causes changes in the specified size of the cards, resulting in improper register in the tabulating machines. In some cases the edges of the cards are partly broken by wear and when such broken surfaces are exposed to atmospheres of high humidity, they become swollen to a thickness sufficient to cause clogging in the throat of the machine in which they are used.

Close cooperation between the manufacturer of this paper and the Government Printing Office resulted in the development of a calendered tag paper which practically eliminated troubles due to expansion and contraction from variations in the moisture content of the air.

Curl.—Curled paper causes serious difficulty in feeding the stock through the press and in maintaining paper register.

There are three types of curl, inherent curl, which shows up immediately on the cutters; delayed curl, which shows up after the paper has stood for some time; and moisture curl, which is due to the tendency of the paper to come to equilibrium in moisture content with that of the surrounding atmosphere. Inherent and delayed curl are due to two sidedness of the paper sheet, uneven finishing, greater absorption of tub-size by one side of the sheet, uneven-rosin sizing and the natural difference between wire and felt sides make for two sidedness. Curl is sometimes caused by one side of the sheet of paper being more coherent, that is, having its fibers more closely bound together than those of the other side.

Pole marks in loft-dried sheets are also causes of inherent curl. Moisture-curl can be controlled by establishing proper humidity conditions and proper storage. A moisture-curl will disappear when the moisture content of the paper reaches equilibrium with that of the surrounding atmosphere.

The grades of paper which have shown the greatest tendency to curl are postal card bristol, index, calendered tag, lithograph-finish map, supercalendered book, and offset book papers. In the case of postal card bristol, it was found that, nothwithstanding the high speed of the postal card presses, the cards curled and seriously interfered with production. Investigation revealed that some postal card paper delivered to the Government Printing Office contained between six and nine per cent moisture which, in adjusting itself to a lower moisture content existing in the air of the pressroom, caused the cards to curl. Paper containing approximately four per cent moisture was found most suitable for reducing this tendency of United States postal cards to curl. Therefore, the present specifications for postal card bristol include the requirement that it shall contain approximately four per cent moisture.

Trouble of this sort is experienced with thin papers, such as manifold, to a greater extent that with thick papers, since they present less physical resistance to the tendency to curl.

Wrinkling.—Recently the offset pressroom experienced difficulty from the wrinkling of 50 per cent rag bond paper on offset presses. Investigation indicated that this was due to a rather sudden change, dependent upon the weather, in the relative humidity of the pressroom resulting in stresses set up in the sheets which were tending to acquire equilibrium with the changing atmospheric conditions.

Wavy Edges.—The edges of paper stacked in piles become wavy, especially during the summer months when high relative humidities exist in the pressroom. This may be attributed to the fact that during the increase in relative humidity the edges absorb moisture while the moisture content of the major portion of the paper remains unchanged. The edges, therefore, increase in length and are restricted from a uniform expansion by the body of the sheet. Localized strains, thus set up, result in the formation of wavy edges.

Cracking of Coated Paper.—Difficulty with cracking of coated paper is experienced in binding during the winter season when excessive dryness of the air in the heated bindery cause the paper to lose practically all of its pliability. Under these conditions the coating may crack while the paper is passing through the folding machines. This will occur not only in the case of coated paper, but also

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Richmond, Va., June 5-7, 1935.

[1] Member TAPPI, Technical Director, Government Printing Office, Washington, D. C.
[2] Asst. Technical Director, Government Printing Office.

in the case of other stocks, when the relative humidity of the atmosphere is excessively low.

STATIC ELECTRICITY.—Static electricity is developed when paper having a low moisture content is exposed to frictional influences in an atmosphere of abnormally low relative humidity. Static is sometimes responsible for sheet-feed hang ups, smutting, failure of joggers to function, and clogging of folders.

Calendered tag stock is especially susceptible to the development of static electricity. This causes the stock to be attracted to the metal while passing through the cutting head of the press. Delayed delivery due to this attraction results in uneven cutting of the cards in length.

Since static electricity develops chiefly upon dry papers used in atmospheres of low relative humidity, it is suggested that manufacturers deliver to the Government Printing Office paper containing a sufficient moisture content to readily adjust itself to equilibrium with atmospheres of about 50 per cent relative humidity. As a safeguard against static, the majority of the presses and folders are equipped with electrical neutralizers which dissipate electric charges as they accumulate upon the paper. The installation of steam boxes on web presses, for moistening the web of paper before entering the printing cylinders, have been found very satisfactory in the reduction of static electricity during press operation.

The solution of the difficulties which arise from such variable conditions in the atmosphere of the pressroom appears to lie in establishing suitable and constant relative humidity during printing and folding operations. For ideal results this virtually points to an air-conditioned plant.

Equipment installed in the job pressroom of the Government Printing Office for increasing the humidity during the winter season and maintenance of 40 to 50 per cent relative humidity proved a decided advantage in securing increased production and in eliminating pressroom difficulties attributable to changing atmospheric conditions.

**Troubles Related to Inherent Paper Conditions**

The second class of paper difficulties encountered in the Government Printing Office relates to the inherent conditions of the paper. This class of trouble embraces web breaks, two sidedness, non-uniformity in thickness, variation in color, deficiency in opacity, show through, fluffing, picking, unsatisfactory ruling quality, objectionable odor and unsatisfactory general appearance.

WEB BREAKS.—The Congressional Record, U. S. postal cards, and various government forms are printed respectively from rolls of newsprint, postal card bristol and machine-finish book paper. The printing of the Congressional Record in particular requires speed of production. The proceedings of the day which make from 16 to 200 printed pages, have to be set, printed and delivered in the 12 hours between 7 P.M. and 7 A.M. of the same night. The high speed of the postal card presses, each printing approximately 384,000 cards per hour, and of the Congressional Record press making 12,000 impressions per hour demands that but few web breaks occur to permit of maximum production. The causes of web breaks have been traced principally to physical defects in the paper, an insufficiency of moisture content of the paper, and improperly wound rolls. In this connection it may be said that the contractors or paper manufacturers should deliver to the Government Printing Office paper free from shives or splinters, slime spots, and calender marks, but containing a suitable amount of moisture and being uniformly and tightly wound upon the rolls.

Splices are sometimes a cause of slowing up production. This is especially true in the case of U. S. postal cards. Rolls should not contain more than two splices, each properly constructed without necessitating their reconstruction by the pressman in order that the web may continuously feed through the press. Some of these troubles may be avoided if the delivered rolls are properly flagged to indicate to the pressman the approach of a splice necessitating the slowing down of the press during its passage.

TWO-SIDED PAPERS.—Printing difficulties arise from paper having different degrees of smoothness of surface finish on the two sides of the same sheet. The finish of the paper is one of its most important characteristics from the standpoint of the printer since the quality of his work depends largely upon its uniformity. Variation in this characteristic of paper is responsible for differences in color value of the printed impressions when such sheets are backed up. A rough and absorptive printing surface requires more ink per unit area than a smooth and less absorptive surface to attain a certain degree of color intensity. It is readily comprehended, therefore, that throughout a specific printing job there should be little or no variation in the finish of the two sides of the same paper in order that variations in the tonal values of the finished printing may be avoided.

Another difficulty which the Government Printing Office has experienced lies in the unsatisfactory ink writing quality on one side of the sheet. This is especially true of machine-finish book paper. Many forms, such as domestic money order application blanks, printed upon this grade of paper for government departments require to be written on with ink. It has been found on many occasions that paper possessing good writing surface on the felt side of the sheet, permitted feathering of the ink and presented an unsatisfactory writing surface on the wire side of the sheet. This is due to the wire side being slack-sized. Rosin sizing is forced from the bottom side of the sheet on to the wire by the flow of water through the sheet and by the suction boxes and suction roll which tend to pull out some of the rosin size. As a precautionary measure to obtain machine-finish book paper appropriate for printing money order application blanks there is now included in the specifications a requirement that the paper shall be suitable for writing on with ink.

VARIATION IN THICKNESS.—Lack of uniformity in thickness is another outstanding difficulty experienced with various grades of paper. Individual volumes of a set of books printed on the same grade and weight of paper and containing the same number of pages have been found to possess varying bulk. United States postal cards printed from stock not within the specified limits in thickness do not properly fit the cartons into which they are to be packed. If the paper is too thick the required number of cards in each carton could not be packed. On the other hand, if the postal card stock is too thin the cards will move about loosely in the carton, which was manufactured to definite dimensions, causing their injury during transit.

The grippers on the automatic banding machines are adjusted to receive a certain number of postal cards for delivery to the banding device. Trouble arises when the thickness is increased since the required number of cards cannot be received by the grippers. If the thickness of the stock is decreased the required number of cards do not tightly fit the grippers and are prematurely thrown out of the machine while being delivered to the banding device.

Variation in thickness of calendered tag stock used in printing tabulating cards formerly gave the Government Printing Office considerable difficulty. Cards of varying thickness when used in automatic tabulating machines adjusted for standard thickness jammed in the gate of the tabulator. Thin cards either went under the gate, two at a time, being thus torn or fed into the machine out of reg-

ister, while cards which were of required thickness were caught in the jams thus created and were also torn. This trouble has been eliminated by the installation of electrically-operated thickness gages on the slitters which cut the rolls for the presses. The gages automatically shut down the slitters when the thickness falls outside of the specified limits.

Index paper is sometimes rejected on account of exceeding in thickness the maximum limit specified. Thick index cards unnecessarily fill up valuable space in filing cabinets.

The foregoing difficulties indicate the importance of maintaining uniform thickness of certain papers in conformity with specifications. Wherever minimum and maximum limits are specified it is essential that the thickness be maintained within these limits.

VARIATION IN COLOR.—Variation in color of machine-finish book paper, sulphite writing, bond and ledger papers is not only encountered among shipments from different contractors, but sometimes occurs in the same shipment. The difficulties which arise from variation in color of the paper are unavoidable since this property of the paper cannot be corrected or allowances made for it in the pressroom. On a long-run job it is sometimes necessary to supply the pressroom with paper taken from different shipments. If the color of successive lots of paper differs somewhat during the press run and the ink remains the same, there will be a variation in the tone value of the printed page, since the ink formula and its tonal quality have previously been adjusted to the color of the paper first used. It is therefore essential that deliveries comply in color values with the Government Printing Office standard sample in order to obtain uniform results in the pressroom.

DEFICIENCY IN OPACITY.—Deficiency in the opacity of paper is chiefly responsible for printed matter showing through upon the reverse side of the sheet. "Show through" occurs only rarely in book papers since the specifications include definite requirements for opacity. This qualification is technically determined by the contrast ratio method.

"Show through" presents a more serious problem in the case of mimeograph paper which is required to be mimeographed upon both sides of the sheet. When the nature of the ink employed upon this type of paper is considered, the difficulty of the problem presented is more easily understood. Mimeograph ink, unlike book printing ink, dries solely by absorption into the paper fibers and therefore the penetration of the oil in such ink below the surface occurs to a greater degree, extending in some cases nearly through the sheet to the opposite surface. This condition demands a high degree of opacity to offset the penetration effect.

FLUFFING.—One particularly annoying difficulty sometimes experienced is the fluffing of paper. Investigation of complaints concerning this difficulty revealed the fact that fluffing was due to one or all of three causes, as follows:

1. Fluff consisting of fibers which were loosened from the surface of the paper by friction.
2. Fibers left on the edges of sheets cut by dull cutter knives.
3. Particles of paper pulled away from the surface by the printing ink.

These particles rise in the air over the press or are otherwise transported, and settle on the rollers from which they are carried to the printing form or plate and interfere with good printing. They also contaminate the ink by working back into the ink fountains.

Fluffing occurs especially with poorly sized machine-finish book papers and soft newsprint. The paper manufacturer could assist in eliminating fluff or paper dust by keeping all knives used in slitting, cutting or trimming sharp and in good condition. Dull cutters tear the fibers free from their matted anchorage along the cut edges producing a frayed effect.

PICKING OF COATING.—Picking of the coating material in coated paper is also one of the printing difficulties sometimes encountered. This is due to the fact that the pulling power of the ink overcomes the cohesion of the coating from the base stock. This difficulty, however, is not always due to soft coating on the paper. It may be due to the fact that a highly viscous and too tacky ink was used for the job. In this case the viscosity of the ink must be reduced since the relative action between the printing ink and coated paper depends upon the viscosity of the ink and the cohesion of the coated material.

UNSATISFACTORY RULING QUALITY.—Unsatisfactory ruling is occasionally experienced with papers tub-sized with glue of a greasy nature. On account of the greasy character of the tub sizing, which appears to unequally coat the individual fibers, the ruling pen strikes and skips producing broken or discontinuous lines. This may be avoided by using in the tub sizing a glue free from grease and other foreign matter which will interfere with any operation of the ruling machine.

OBJECTIONABLE ODORS.—During the summer season it is not uncommon to receive glue tub-sized paper having an objectionable odor. The intensity of the odor depends upon the degree to which the glue has been preserved against decomposition. Although such papers may not present obstacles to press operations, the printer naturally objects to the use of paper possessing such unpleasant odor.

UNSATISFACTORY GENERAL APPEARANCE.—One of the most objectionable features of paper is an unsatisfactory general appearance due to inclusion of dirt. The presence of even minute particles of dirt, scarcely discernible by the eye, destroys the effectiveness of good printing and is particularly degrading to the highlight effects in halftones. The extent of this deficiency in the character of paper employed for good quality of printing is manifested in the Annual Report of the Public Printer for 1934 showing 96 rejections on account of unsatisfactory general appearance out of a total of 310. This is 31 per cent of the total number of rejections made during the last fiscal year. Paper delivered to the Government Printing Office must conform to the standard sample in general appearance in order to avoid rejection due to the presence of dirt.

We believe that the above-mentioned difficulties, which government printers encounter in their professional use of paper, are outstanding problems in the experience of all printers and users of paper. We therefore feel that this brief article will have served its purpose if it may point the way to the application of methods for the elimination, at their source if possible, of all such obstacles as may slow up the speed of production or degrade the high quality of the printer's work.

## Whiting-Plover Move New York Office

The Whiting-Plover Paper Company, Stevens Point, Wis., which formerly maintained an Eastern sales office at 501-5th avenue, has combined its warehouse and sales office in a new location, at 71-73 Murray Street, New York City.

This move was taken to facilitate service to its customers in New York City and other Eastern territories and also to enable carrying complete stocks of the new Keebord line of typewriter papers introduced the first of this year, which are receiving a splendid reception in this territory.

## Timken Engineering Journal Revised

The Third Edition of the Timken Engineering Journal has just been issued by the Timken Roller Bearing Company, Canton, Ohio. Copies may be secured without charge by engineers, designers, libraries, and executives on request to the company or any district office. Requests should be made on company stationery, giving title or connection.

This 260 page Journal, which is a series of 8½x11 inch loose leaves, bound in a heavy three ring binder with stiff covers, has a 22 section marginal tab index for ready reference as well as the customary detailed index sheet.

The first four sections, comprising 46 pages, cover the design of Timken Bearings with illustrations of the various types, a discussion of how they are rated, the curves and factors which apply for speed, life expectancy, engine torque, use or application, and 15 typical examples of how loads are calculated and bearings selected for various applications.

Following the tabular sections of the Journal (50 pages), are the detailed dimension sheet sections (108 pages), preceded by a special index enabling the user to locate any bearing by series or number. Full and half-size illustrations suitable for tracing are given for all single row bearings and each sheet carries a table of ratings for the bearing shown for various speeds.

Complete data are available in the Journal on Timken shims, locknut and washer assemblies, annular groove closures, tubes, etc., and a special section illustrates and describes typical methods of mounting Timken Bearings, presenting also numerous suggestions as to effective closures.

The last two sections of the Journal discuss cup and cone fitting practice for Timken Bearings, giving definite recommendations, and cover also the subject of lubrication. Specifications for lubricants are given for a wide range of applications, together with a discussion of the use of the Timken Lubricant Tester.

This Third Edition of the Timken Engineering Journal includes 54 new standard Timken Bearings and a new series of 6 heavy duty thrust bearings. 8 new cups have been listed, 2 new annular ring closures, and 12 new tubes. Numerous other minor changes in bearing construction, tolerances, etc, have been made in the body of the book and certain revisions made in the drawings to bring them up to date.

Supplementing the Journal are seven special sections on: mine cars, conveyors, shop trucks, cranes, aircraft, machine tools, and farm equipment. The first five give detailed bearing recommendations together with a tabulation of the bearings used for the particular applications. Those relating to machine tools and farm equipment, however, present a series of typical mountings for various applications and are intended to serve only as suggestions to engineers and machine designers. Copies of any of the special sections may also be secured without charge from the Timken Roller Bearing Company or any of its district offices.

## Eddy Company Raises Wages

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 10, 1935—The Eddy Company, paper manufacturers, have announced a 5 percent increase in salary for its employees retroactive from May 1. The increase to approximately 800 employees will add $30,000 to the payrolls of the company and will affect many people in Heill, where the company's plant is situated, and in the neighboring city of Ottawa.

## New Jersey Zinc Co. Advances Neumann

The appointment of R. M. Neumann to the position of manager of Pigment Division of the New Jersey Zinc Sales Company with headquarters in New York has just been announced. Mr. Neumann succeeds the late Robert Hursh in that office.

Entering the employ of the New Jersey Zinc Company in 1906 as clerk in the Treasury Department, Mr. Neumann advanced to the office of Cashier in 1912. Before the end of 1912 he was promoted to the position of assistant treasurer and assistant secretary of the Mineral Point Zinc Company, a subsidiary, and transferred to Chicago. His appointment as manager of Western Sales of the New Jersey Zinc Sales Company, with headquarters in Chicago, took place in 1918.

R. M. NEUMANN

## B. C.'s Forestry Training Plan

MONTREAL, Que., June 10, 1935—A despatch from Victoria, B. C., states that British Columbia's forestry training plan for youths in need was being translated into practical reality today, with 100 men in the field and 300 others to follow without delay. Three provincial departments are co-operating in the scheme; relief offices providing the money, employment officials selecting the men, and the operations branch of the forestry service taking charge in the woods.

The Hon. George S. Pearson, under whose direction the scheme is being launched, said the province was forced by circumstances to limit placements to those in actual need, selecting young men between the ages of 21 and 25 who have been ten year residents of British Columbia. Hundreds of additional applications have been received, but limits of the plan are set by the funds available.

## Androscoggin To Shut Down

An Associated Press Despatch, dated at South Windham, Me., June 6, states that the Androscoggin Pulp Corporation, in operation since 1868 and believed to be the oldest plant of its kind in the country, posted notice that day of a shut-down when present orders were completed. The plant employs about 225 persons. The concern is owned by the Robert Gair Company, Inc., of New York.

## New Electric Roll Grinder

The accompanying illustration represents the new electric roll grinder made by the Hisey-Wolf Machine Company, of which the several machines already sold have proven very satisfactory for refinishing the rolls used in paper mills. The grinder is readily adapted to practically any machines, hence in most instances rolls can be ground without removal, thereby saving a great deal of time and eliminating costly shut-downs. These new grinders with powerful constant speed motors operate at practically the same speed under any load within their rated capacity. This insures a steady uniform grind producing the best results. Not depending upon speed for power, specially bonded wheels to safely withstand excessive speeds are unnecessary; ordinary vitrified wheels can be used with absolute safety.

Due to their unique design these grinders permit mounting the grinding head close up to the roll, affording maxi-

NEW HISEY-WOLF GRINDER

mum wear of the grinding wheel and eliminate interference of the large motor as in the case of direct connected motor grinders. The dovetail slide with screw feed and handle affords rapid adjustment of the wheel to the center of the work. This adjustment due to the angle of slide does not affect the belt tension.

Matched precision ball-bearings with accurately determined pre-load are used exclusively on all grinding spindles. The lubrication system envelopes all bearings in a mist of oil regardless of the position in which machine is operated. These grinders can be used horizontally, vertically or in any intermediate position. Combination labyrinth and contact seals preclude any possibility of dust getting into the bearing chambers.

The "V" Belt drive transmits more than 99 per cent of the motor output without slippage. This type of drive requires very little belt tension, and therefore, a minimum non-productive load is imposed upon the bearings materially increasing their life. The drives have liberal reserve capacity for transmitting the rated horsepower of the machine. This machined motor slide base affords rapid belt adjustment. Spindle speeds furnished as standard are as recommended by the grinding wheel manufacturers as being the most efficient and economical for each particular size wheel.

## Brownville Paper Co. Elects Officers

BROWNVILLE, N. Y., June 10, 1935—The annual meeting of stockholders of the Brownville Paper Company was held last week at which officers and directors for the year were chosen. Samuel A. Upham was re-elected president of the company and R. L. Pease vice-president. J. H. Lingenfelter was chosen secretary-treasurer. The directors elected included the officers with G. F. Clark and Seymour M. Jones. Mr. Jones succeeds the late David M. Anderson.

## Facts on Power Transmission

Executives and engineers will want to see a new publication of the Graton & Knight Company of Worcester, Mass., and its Home of Research presenting a complete economic study of that most important management problem of today—the application of power to the work. This discusses fully the economics of the two generally used systems—Individual Motor and Modern Group Drive.

This much talked about and highly important subject has been handled very capably in a graphic, 44-page presentation, recently published. The necessary facts and figures have been made readable and interesting by the liberal use of drawings and illustrative material. All the way through the book, pictures predominate and words have been kept to a minimum. A typical page, selected at random, shows the type of material and the manner in which it is presented.

An inkling of the contents of this book can be obtained from some of the headings: "Two Ways You Can Spend Your Income Dollars for Power Transmission;" "Investment Cost for Motors;" "Power Cost;" "Maintenance;" "Why Planned Power Transmission is Important During Times of Reduced Production;" "Planned Group Drive Can Give You, etc."; "Where a Balanced System of Group and Unit Drives Brought Savings, etc."; "Economic Power Transmission"; and so on.

From the discussion of the proper application of both group and unit drives, the story is carried on to show the importance of the selection of the proper belt to give the best efficiency to the correct drive. The last few pages contain charts and tables that are useful in figuring the power transmission requirements of any particular machine.

## Durability Proved by Years of Service

Oliver United Filters, Inc., has just issued under the title "Durability Proved by Years of Service," a circular which is rather out of the ordinary. It is printed on paper simulating California Redwood, with the following statement:

"Several hundred Oliver Pulp Filters with Redwood parts are today operating in paper mills. Some of the oldest units are still going strong after 15 years of service, and the Redwood drums and tanks are as sound today as the day they were installed. To our knowledge, the staves in tanks or drums of our filters have never had to be replaced.

"California Redwood is durable. This has been proved not only in the many Oliver United Pulp Filters but in other paper mill equipment such as stuff chests, pipe lines and penstocks. It is being used today to replace metal pipe in a number of mills.

"Redwood construction is offered you as an alternate to all-metal or white rubber-covered metal construction for all types of pulp filters. We can make and are making all types of construction. You are offered this choice because we believe you will want the proved durability of California Redwood."

## Malvern Text Agents Appointed

The Hooper Paper and Twine Company, 105 Church street, Philadelphia, have become agents for Malvern Text paper, manufactured by the Hampshire Paper Company.

In addition to Malvern Text, Hooper Paper and Twine Company carry two other Hampshire papers, namely, Dartford Bond and Appraisal Ledger.

# IMPORTS OF PAPER AND PAPER STOCK

## NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

### NEW YORK IMPORTS

WEEK ENDING JUNE 8, 1935

CIGARETTE PAPER

Champagne Paper Corp., Normandie, Havre, 50 cs.; American Tobacco Co., Sarcoxie, Bordeaux, 100 cs.; H. H. Strauss, Sarcoxie, Bordeaux, 368 cs.; Champagne Paper Corp., Sarcoxie, St. Nazaire, 100 cs.

WALL PAPER

W. H. S. Lloyd & Co., American Farmer, London, 1 cs., 2 bls.; Titan Shipping Co., Cliffwood, Gefle, 12 bxs.; ———, Venice, Maru Kobe, 5 bls.

INSULATION BOARD

———, City of Fairbury, Wallvik, 370 bdls.

WALL BOARD

Treetex Corp., City of Fairbury, Horneborg, 3240 bdls.

NEWSPRINT

N. Y. Evening Journal, Markland, Liverpool, N. S., 292 rolls; Herald Tribune, Markland, Liverpool N. S., 1527 rolls; World Telegram, Markland, Liverpool, N. S., 608 rolls; Bridgeport Herald, Markland, Liverpool, N. S., 35 rolls; South Norwalk Sentinel, Markland, Liverpool, N. S., 66 rolls; Brooklyn Daily Eagle, Markland, Liverpool, N. S., 575 rolls; Lunham & Reeve, Inc., Hallaren, Kotka, 196 rolls; Jay Madden Corp., Hallaren, Kotka, 267 rolls; Jay Madden Corp., Stuttgart, Bremen, 133 rolls; ———, Bergensfjord, Oslo, 243 rolls; ———, Bergensfjord, Skien, 27 bls.; Jay Madden Corp., Europa, Bremen, 229 rolls; N. Y. Evening Journal, Samanger, Quebec, 3864 rolls.

PRINTING PAPER

Steiner Paper Corp., Deutschland, Hamburg, 43 cs.; J. H. & G. B. Siebold, Deutschland, Hamburg, 5 cs.; G. J. Fijux, Scanyork, Wiborg, 150 rolls; Steiner Paper Corp., Volendam, Rotterdam, 25 cs.; Continental Typefounders Ass'n, Volendam, Rotterdam, 13 cs.; Steiner Paper Corp., Estrella, Marseilles, 3 cs.; S. Bienfang, Estrella, Marseilles, 4 cs.; The Frederick Post Co., Estrella, Marseilles, 4 cs.

WRAPPING PAPER

Scharf Bros., Black Gull, Rotterdam, 4 cs.

KRAFT PAPER

———, Bergensfjord, Oslo, 480 rolls, 83 bls.

PACKING PAPER

Chas. Happel, Black Gull, Rotterdam, 5 cs.; ———, Stuttgart, Bremen, 15 cs.

TRACING CLOTH PAPER

C. Bruning Co., Stuttgart, Bremen, 38 cs.

GUMMED PAPER

———, Stuttgart, Bremen, 9 cs.

DRAWING PAPER

Japan Paper Co., American Farmer, London, 1 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., American Farmer, London, 3 cs.; Orbis Products Trading Co., Aquitania, Southampton, 8 bls.; E. Fougera & Co., Aquitania, Southampton, 16 cs.; H. Reeve Angel & Co., Inc., Acquitania, Southampton, 11 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Black Heron, Antwerp, 24 cs.; Gevaert Co. of America, Westernland, Antwerp, 26 cs.

METAL COATED PAPER

K. Pauli Co., Stuttgart, Bremen, 69 cs.; Globe Shipping Co., Europa, Bremen, 15 crates.

PHOTO PAPER

———, Deutschland, Hamburg, 2 cs.; American Express Co., Deutschland, Hamburg, 51 cs.

TISSUE PAPER

Atlantic F'd'g Co., Deutschland, Hamburg, 8 cs.; Singer Manfg. Co., Tai Ping, Kobe, 19 cs.; B. F. Drakenfeld & Co., American Importer, Liverpool, 1 cs.; W. J. Byrnes, Aquitania, Southampton, 1 cs.; J. Romer, Venice Maru, Kobe, 3 cs.

DECALCOMANIAS

Sellers Transportation Co., Europa, Bremen, 40 cs.; Sellers Transportation Co., Deutschland, Hamburg, 9 cs.; ———, Deutschland, Hamburg, 2 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., American Importer, Liverpool, 13 cs. (simplex).

TRANSFER PICTURES

D. C. Andrews & Co., Stuttgart, Bremen, 2 cs.; Rohner Gehrig & Co., Europa, Bremen, 7 cs.

COLORED PAPER

Borden Riley Paper Co., Westernland, Antwerp, 3 cs.

PARCHMENT PAPER

F. C. Strype, Volendam, Rotterdam, 3 pkgs.

COPY PAPER

H. C. Davidson & Co., Venice Maru, Yokohoma, 4 cs.

MISCELLANEOUS PAPER

Moller Products Corp., Tai Ping, Yokohama, 7 cs.; U. S. Envelope Co., Tai Ping, Yokohama, 19 cs.; R. Wilson Paper Corp., California, Glasgow, 18 rolls; ———, Normandie, Havre, 29 cs., 4 bls.; ———, Nankai Maru, Osaka, 37 cs.; National City Bank, Nankai Maru, Yokohama, 12 cs.

BAGS, BAGGINGS, ETC.

J. Cohen Son Co., Schodack, Havre, 37 bls. rags; Irving Trust Co., Schodack, Havre, 41 bls. new cuttings; W. Steck & Co., Black Heron, Antwerp, 67 bls. hemp waste; Royal Manfg. Co., Black Heron, Antwerp, 610 bls. cotton waste; Castle & Overton, Inc., Quaker City, Dundee, 114 bls. paper stock; E. J. Keller Co., Inc., Black Gull, ———, 238 bls. rags; Philadelphia Nat'l Bank, Belfast Maru, Kobe, 200 bls. cotton waste; H. Schimmel, Belfast Maru, Kobe, 50 lbs. cotton waste; Bingham & Co., Belfast Maru, Kobe, 225 bls. cotton waste; ———, Quaker City, Dundee, 107 bls. paper stock; Castle & Overton, Inc., Argentino B. Ayres, 206 bls. rags; Castle & Overton, Inc., Argentino,

B. Ayres, 88 bls. bagging; Amtorg Trading Corp., City of Fairbury, Leningrad, 879 bls. rags; Amtorg Trading Corp., City of Fairbury, Leningrad, 930 bls. flax waste; ———, California, Glasgow, 51 bls. bagging; ———, California, Glasgow, 41 bls. paper stock; Van Oppen & Co., Westernland, Antwerp, 191 bls. rags; Royal Manfg. Co., American Importer, Manchester, 50 bls. cotton waste; ———, American Importer, Manchester, 101 bls. cotton waste; ———, American Importer, Manchester, 152 bls. bagging; E. J. Keller Co., Inc., American Farmer, ———, 66 bls. bagging; E. J. Keller Co., Inc., Pr. Adams, ———, 46 bls. bagging; E. J. Keller Co., Inc., Pr. Adams, ———, 70 bls. paper stock; Manufacturers Trust Co., Pr. Adams, Bombay, 1050 bls. cotton waste; Philadelphia National Bank, Pr. Adams, Bombay, 100 bls. cotton waste; Chase National Bank, Estrella, Barcelona, 204 bls. cottons; Chase National Bank, Estrella, Barcelona, 82 bls. cotton waste; Royal Manfg. Co., Estrella, Barcelona, 40 bls. cotton waste; S. Birkenstein & Son, Estrella, Barcelona, 114 bls. bagging; Bank of N. Y. Trust Co., Estrella, Barcelona, 158 bls. bagging; Bank of N. Y. Trust Co., Estrella, Barcelona, 54 bls. tares; ———, Estrella, Barcelona, 73 bls. tares; ———, Estrella, Barcelona, 59 bls. fustians; ———, Estrella, Barcelona, 80 bls. old cottons; ———, Estrella, Barcelona, 77 bls. bagging; Bank of N. Y. Trust Co., Estrella, Valencia, 200 bls. rags; Great Eastern Packing & Paperstock Co., Motomar, Barcelona, 85 bls. bagging; Loumar Textile By Products, Inc., Motomar, Barcelona, 214 bls. bagging; J. J. Ryan & Sons, Inc., Venice Maru, Kobe, 106 bls. cotton waste; O'Brien Padawer, Inc., Venice Maru, Shanghai, 100 bls. cotton waste; New England Waste Co., Venice Maru, Shanghai, 353 bls. cotton waste; O'Brien Padawer, Inc., Venice Maru, Kobe, 50 bls. cotton waste; Bond Bros. Co., Venice Maru, Kobe; 100 bls. cotton waste; Globe Sanitary Rag Co., Venice Maru, Kobe, 70 bls. rags; Bingham & Co., Venice Maru, Kobe, 200 bls. cotton waste; Mitsui & Co., Ltd., Venice Maru, Nagoya, 15 bls. rags; E. J. Keller Co., Inc., Sarcoxie, ———, 79 bls. rags; Jaffe Products Co., Orizaba, Havana, 59 bls. rags.

BONE GLUE

———, Deutschland, Hamburg, 250 bags.

OLD ROPE

A. S. Wilson Co., Winona County, Belfast, 48 coils; Chase National Bank, American Farmer, London, 38 coils.

CASEIN

———, Deutschland, Hamburg, 60 bags; ———, Normandie, Havre, 267 bags.

WOOD PULP

Castle & Overton, Inc., Deutschland, Hamburg, 685 bls. wood pulp, 137 tons; M. Sone, Scanyork, Helsingfors, 300 bls. wood pulp, 50 tons; Atterbury Bros., Inc., Scanyork, Helsingfors, 450 bls. wood pulp, 87 tons; Lagerloef Trading Co., Scanyork, Helsingfors, 827 bls. sulphite, 130 tons; Lagerloef Trading Co., Scanyork, Wiborg, 195 bls. sulphite, 33 tons; Lagerloef Trading Co., Scanyork, Wiborg, 530 bls. sulphate, 106 tons; Tradesmans Nat'l Bank Trust Co., City of Fairbury, Norrsundet, 1375 bls. sulphate, 303 tons; Price & Pierce, Ltd., City of Fairbury, Wallvik, 1500 bls. sulphite, 250 tons; Lagerloef Trading Co., Hallaren, Helsingfors, 1014 bls. sulphite; Castle & Overton, Inc., Hallaren, Wiipuri, 2399 bls. wood pulp; Lagerloef Trading Co., Hallaren, Wiipuri, 5365 bls. sulphite; Lagerloef Trading Co., Hallaren, Wiipuri, 523 bls. sulphate; Lagerloef Trading Co., Hallaren, Kotka, 66 bls. sulphate; Castle & Overton, Inc., Rydboholm, Wiipuri, 1301 bls. wood pulp; Lagerloef Trading Co., Rydboholm, Wiipuri, 2551 bls. sulphite; Lagerloef Trading Co., Rydboholm, Wiipuri, 162 bls. sulphate; Lagerloef Trading Co., Rydboholm, Kotka, 1040 bls. ground pulp; A. Giese & Son, Volendam, Rotterdam, 50 bls. wood pulp; Pagel Horton & Co., Inc., Cliffwood, Gefle, 375 bls. sulphite, 75 tons; Pagel Horton & Co., Inc., Cliffwood, Gefle, 750 bls. sulphate, 152 tons; Stora Kopparberg Corp., Cliffwood, Gefle, 325 bls. dry pulp, 65 tons; Price & Pierce, Ltd., Cliffwood, Orviken, 600 bls. chemical pulp, 100 tons; Price & Pierce, Ltd., Cliffwood, Hernosand, 600 bls. sulphite, 100 tons; ———, Bergensfjord, Sarpsborg, 150 bls. sulphite; ———, Bergensfjord, Sarpsborg, 342 bls. sulphite; The Borregaard Co., Inc., Bergensfjord, Sarpsborg, 840 bls. sulphate; Irving Trust Co., Bergensfjord, Oslo, 1570 bls. mechanical pulp; J. Andersen & Co., Bergensfjord, Oslo, 1459 bls. sulphite; Chemical Bank Trust Co., Bergensfjord, Oslo, 175 bls. sulphite; Gottesman & Co., Inc., Boren, Sweden, 1338 bls. wood pulp; Gottesman & Co., Inc., Drottningholm, Gothenburg, 500 bls. wood pulp; Bulkley Dunton & Co., Kungsholm, ———, 500 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Scanyork, Wiborg, 114 bls., 14 tons; Lagerloef Trading Co., Cliffwood, Wiborg, 157 bls., 23 tons; ———, Hallaren, Wiipuri, 300 rolls; ———, Rydboholm, Wiipuri, 500 rolls.

## ALBANY IMPORTS

WEEK ENDING JUNE 8, 1935

Gottesman & Co., Inc., Cliffwood, Stockholm, 1200 bls. sulphite, 200 tons; Lagerloef Trading Co., Cliffwood, Helsingfors, 320 bls. sulphite, 52 tons; ———, Cliffwood, Helsingfors, 333 rolls wrapping paper; Castle & Overton, Inc., Cliffwood, Wiborg, 410 bls. wood pulp, 82 tons; Lagerloef Trading Co., Cliffwood, Wiborg, 976 bls. sulphite, 163 tons; Lagerloef Trading Co., Cliffwood, Wiborg, 66 bls. sulphate, 11 tons; Pagel Horton & Co., Inc., Cliffwood, Gefle, 1750 bls. sulphite, 355 tons; ———, Cliffwood, Gefle, 500 bls. sulphite, 100 tons; ———, Cliffwood, Gefle, 97 bdls. wall board; Price & Pierce, Ltd., Cliffwood, Orviken, 1200 bls. chemical pulp, 200 tons; Price & Pierce, Ltd., Cliffwood, Hernosand, 600 bls. sulphite, 100 tons; M. Sone, Cliffwood, Gdynia, 4936 bls. wood pulp, 762 tons; ———, Cliffwood, Gdynia, 336 bls. wood pulp, 50 tons; Bulkley Dunton & Co., Teneriffa, ———, 1375 bls. wood pulp; Bulkley Dunton & Co., Karpfanger, ———, 1550 bls. wood pulp.

## NEWARK IMPORTS

WEEK ENDING JUNE 8, 1935

Newark Evening News, Donpaco, Donnacona, 314 rolls newsprint.

## PORTLAND IMPORTS

WEEK ENDING JUNE 8, 1935

Castle & Overton, Inc., Rydboholm, Wiipuri, 2595 bls. wood pulp; Lagerloef Trading Co., Rydboholm, Wiipuri, 2620 bls. sulphate; Lagerloef Trading Co., Rynboholm, Kotka, 3432 bls. sulphite; Gottesman & Co., Inc., Boren, Sweden, 3000 bls. wood pulp.

## BOSTON IMPORTS

WEEK ENDING JUNE 8, 1935

Castle & Overton, Inc., Black Gull, Rotterdam, 40 bls. wood pulp, 6 tons; State Chemical Co., Black Gull, Rotterdam, 1000 bags wood flour, 53420 kilos; International Purchasing Co., Black Gull, Rotterdam, 53 coils old rope; E. J. Keller Co., Inc., Tai Ping, ———, 800 bls. bagging; J. J. Ryan & Son, Inc., Tai Ping, Kobe, 120 bls. cotton waste; J. J. Ryan & Son, Inc., Venice Maru, Kobe, 155 bls. cotton waste; Gottesman & Co., Inc., Tampa, Sweden, 620 bls. wood pulp; Castle & Overton, Inc., Rydboholm, Wiipuri, 6884 bls. wood pulp; Lagerloef Trading Co., Rydboholm, Wiipuri, 3044 bls. sulphate; Lagerloef Trad-

*(Continued on page 96)*

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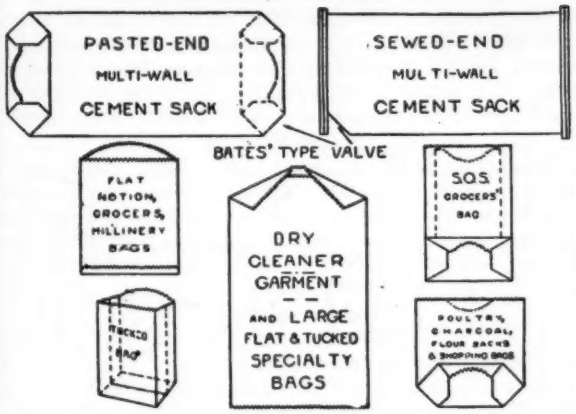
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## New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, June 12, 1935.

Steadiness prevails in the local paper market, despite the uncertainty regarding future government control of the industry. Manufacturers and distributors, alike, appear determined to preserve the benefits secured under the National Recovery Act. Prices are holding to schedule and reports of shading are infrequent.

Analysis of Media Records shows an increase of 4.1 per cent in retail lineage of the eleven New York newspapers for May compared with the total of May, 1934. The gain for all major groups for the month, however, was only .02 per cent. The position of the newsprint paper market is practically unchanged.

The fine paper market continues fairly active and the demand for book, cover, writing and ledger papers is considered satisfactory for the season. Prices are well maintained. Tissues are moving into consumption in good volume. The coarse paper market is displaying strength and kraft specialties, in particular, are arousing more interest.

### Mechanical Pulp

Production of ground wood pulp is being maintained in sufficient volume to take care of current requirements. Supplies are going forward into consumption in fairly good tonnage for the time of year. Quotations on domestic and foreign mechanical pulp are generally holding to previously quoted levels, without difficulty.

### Chemical Pulp

No radical changes transpired in the chemical pulp market. Demand for the various domestic and imported grades is fairly persistent. Kraft pulp continues to exhibit a strong undertone. Bleached sulphite is still quoted at from $2.50 to $2.60 and all prime easy bleaching at $2.05 per 100 pounds, on dock.

### Old Rope and Bagging

The old rope market continues quiet. Demand for both domestic and foreign old manila rope is restricted. Small mixed rope is dull. Prices remain unchanged. The bagging market, however, is fairly active. Scrap and gunny bagging are displaying strength, while roofing bagging is in seasonal request.

### Rags

Some improvement is noticed in the domestic rag market. Paper mill demand for new cotton rags is better. No. 1 white shirt cuttings, in particular, are moving well and are still in request for export. Roofing rags are attracting more interest. The position of the imported rag market is fairly satisfactory.

### Waste Paper

The paper stock market is showing some signs of revival. Board mill demand for the lower grades is more in evidence. No. 1 mixed paper is firmer and is now bringing twenty cents, the same quotation as stricted folded news, the price for which is still stationary. The higher grades of waste paper are fairly steady.

### Twine

Conditions in the local twine market are fairly satisfactory. Demand for the various varieties of twine is well sustained. Supplies are going forward in good volume for the season. Prices are generally holding to formerly quoted levels, despite the usual keen competition for desirable orders.

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## IMPORTS OF PAPER AND PAPER STOCK

(*Continued from page 94*)

ing Co., Rydboholm, Wiipuri, 862 bls. sulphite; Stone & Downer Co., Rydboholm, Kotka, 175 rolls newsprint; Lagerloef Trading Co., Rydboholm, Kotka, 1435 bls. sulphate; Lagerloef Trading Co., Rydboholm, Kotka, 268 bls. sulphite; Lagerloef Trading Co., Rydboholm, Kotka, 260 bls. mechanical pulp.

### PHILADELPHIA IMPORTS

WEEK ENDING JUNE 8, 1935

M. Sone, Quaker City, Hamburg, 320 bls. wood pulp, 50 tons; Jay Madden Corp., Quaker City, Hamburg, 270 rolls wrapping paper; ———, Quaker City, Hamburg, 54 rolls newsprint; Castle & Overton, Inc., Argentino, B. Ayres, 34 bls. rags; M. Sone, Scanyork, Helsingfors, 835 bls. wood pulp, 167 tons; Lagerloef Trading Co., Scanyork, Helsingfors, 950 bls. sulphite, 156 tons; Lagerloef Trading Co., Scanyork, Wiborg, 530 bls. sulphate, 106 tons; Lagerloef Trading Co., Scanyork, Wiborg, 488 bls. sulphite, 81 tons; Lagerloef Trading Co., Scanyork, Wiborg, 508 bls. mechanical pulp, 101 tons; Lagerloef Trading Co., Scanyork, Wiborg, 746 rolls pulp boards, 84 tons; J. W. Hampton Jr. & Co., Scanyork, Wiborg, 125 rolls newsprint; J. W. Hampton Jr. & Co., Scanyork, Wiborg, 23 bls. printing paper; Tampa Paper Co., Scanyork, Wiborg, 45 bls. newsprint; ———, Black Gull, Rotterdam, 59 bls. rags; State Chemical Co., Black Gull, Rotterdam, 400 bags wood flour, 24,000 kilos; E. J. Keller Co., Inc., Tai Ping, ———, 500 bls. rags; ———, Belfast Maru, Kobe, 100 bls. cotton waste; National Wiping Cloth Co., Belfast Maru, Kobe, 50 bls. rags; Price & Pierce, Ltd., City of Fairbury, Wallvik, 300 bls. sulphate, 50 tons; Price & Pierce, Ltd., City of Fairbury, Wallvik, 250 bls. mechanical pulp, 50 tons; E. J. Keller Co., Inc., City of Fairbury, ———, 336 bls. wood pulp, 50 tons; ———, Leto, Port Alfred, 2298 rolls newsprint; Lagerloef Trading Co., Cliffwood, Wiborg, 2368 bls. sulphite, 461 tons; Stora Kopparberg Corp., Cliffwood, Gefle, 400 bls. dry pulp, 81 tons; Pagel Horton & Co., Inc., Cliffwood, Gefle, 1000 bls. sulphite, 100 tons; Gottesman & Co., Inc., Cliffwood, Iggesund, 1250 bls. sulphite, 250 tons; Gottesman & Co., Inc., Cliffwood, Iggesund, 1000 bls. sulphate, 200 tons; Price & Pierce, Ltd., Cliffwood, Orviken, 1050 bls. chemical pulp, 175 tons; Price & Pierce, Ltd., Cliffwood, Hernosand, 450 bls. sulphite, 75 tons; E. M. Sergeant & Co., Cliffwood, Hernosand, 1500 bls. sulphite, 250 tons; Philadelphia National Bank, Nankai Maru, Osaka, 200 bls. cotton waste; F. Stern, Estrella, Marseilles, 101 bls. rags; American Cotton Products Co., Venice Maru, Shanghai, 200 bls. cotton waste; Philadelphia National Bank, Venice Maru, Kobe, 100 bls. cotton waste; E. J. Keller Co., Inc., Sarcoxie, ———, 15 bls. rags; E. J. Keller Co., Inc., Sarcoxie, ———, 86 bls. new cuttings.

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# Miscellaneous Market

Office of the PAPER TRADE JOURNAL,
Wednesday, June 12, 1935.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The Pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. Shipments against contract are moving into consumption in moderate volume. Prices remain unchanged. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is firm. Domestic standard ground is quoted at 12 and finely ground at 12½; Argentine standard ground at 13¼ and finely ground at 13½; French standard ground at 13½ and finely ground at 13¾ cents per pound, in bags, car lot quantities.

CAUSTIC SODA.—Business in the caustic soda market is fairly active. The contract movement is normal for the season. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is exhibiting a fairly strong undertone. Prices remain unchanged. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at mine.

CHLORINE.—Demand for chlorine is fairly persistent. The contract movement is well up to average for the season. Prices are firm. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is marking time. Paper making gum rosin is quoted at $4.45 and wood rosin at $4.35 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is still selling at $2.58 per 100 pounds, in tank cars, at works.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Prices are steady. Salt cake is quoted at from $12 to $13 and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, on dock.

SODA ASH.—The soda ash market continues firm. Demand is fairly persistent. Contract shipments are normal for the time of year. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—No radical changes have transpired in the starch market. Demand is well sustained and prices are holding to schedule. Special paper making starch is quoted at $3.59 per 100 pounds, in bags; and at $3.86 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is holding up well. Prices are holding to formerly quoted levels. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Paper mill demand for talc is fairly brisk for the season. Prices are holding to schedule, without difficulty. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

# Market Quotations

## Paper

| | | | |
|---|---|---|---|
| (F. o. b. Mill) | | | |
| Ledgers | 6.50 | @ | — |
| Bonds | 6.00 | @ | — |
| Index | 6.00 | @ | — |
| Writings— | | | |
| Extra Superfine | 6.50 | @ | — |
| Superfine | 6.25 | @ | — |
| Tub sized | 5.75 | @ | — |
| Engine sized | 5.50 | @ | — |
| Book, Cased— | | | |
| S. & S. C. | 5.35 | @ | 5.75 |
| S. & S. C. Litho. | 5.60 | @ | 6.00 |
| M. F. | 5.10 | @ | 5.50 |
| Coated and Enamel | 5.90 | @ | 6.55 |
| Coated Litho | 5.90 | @ | 6.55 |
| Tissues—Per Ream— | | | |
| White No. 1 | .82½ | @ | .85 |
| White No. 2 | .67½ | @ | — |
| Anti-Tarnish M. G. only | 1.00 | @ | — |
| Colored | .85 | @ | — |
| Kraft | .70 | @ | — |
| Manila | .67½ | @ | .70 |
| Manila— | | | |
| No. 1 Jute | 9.00 | @ | 9.25 |
| No. 2 Jute | 7.75 | @ | 8.50 |
| No. 1 Wood | 4.00 | @ | 5.25 |
| No. 2 Wood | 3.50 | @ | 4.00 |
| Butchers | 4.00 | @ | 4.50 |
| Fibre Papers— | | | |
| No. 1 Fibre | 4.25 | @ | 5.50 |
| No. 2 Fibre | 4.00 | @ | 4.75 |
| Common Bogus | 1.50 | @ | 3.00 |
| Screenings | 2.50 | @ | 3.50 |
| Glassine— | | | |
| Bleached | .11 | @ | — |
| Unbleached | .09 | @ | — |

(The following Quotations are Delivered New York)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Roll, contract | 40.00 | @ | — |
| Rolls, spot | 40.00 | @ | — |
| Sheets | 45.00 | @ | — |
| Kraft— | | | |
| No. 1 Northern | 4.12½ | @ | 4.75 |
| Standard | 4.00 | @ | — |
| Southern | 3.87½ | @ | — |
| Boards—per ton— | | | |
| News | 40.00 | @ | 42.50 |
| Chip | 37.50 | @ | 40.00 |
| Sgl. Mis. Ll. Chip | 45.00 | @ | 47.50 |
| Jute Lined Chip | 45.00 | @ | 47.50 |
| White Patent Coated | 55.00 | @ | 57.50 |
| Binders Boards | 67.00 | @ | 75.00 |

## Mechanical Pulp

(On Dock, Atlantic Ports)

| | | | |
|---|---|---|---|
| No. 1 Imported— | | | |
| Moist | 21.00 | @ | 22.00 |
| Dry | 21.00 | @ | 22.00 |
| (F.o.b. Mill) | | | |
| No. 1 Domestic and Canadian | 18.00 | @ | 24.00 |

## Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

| | | | |
|---|---|---|---|
| Bleached Sulphite (Domestic and Foreign)— | | | |
| Division 1 | 2.60 | @ | —* |
| Division 2 | 2.55 | @ | —* |
| Division 3 | 2.50 | @ | —* |
| Prime Qualities— | | | |
| Class 1. All Prime Easy Bleaching | 2.05 | @ | —* |
| Other Than Easy Bleaching— | | | |
| Class 2. Higher Than Standard | 2.00 | @ | —* |
| Class 3, Standard | 1.95 | @ | —* |
| Class 4. Lower than Standard | 1.90 | @ | — |
| (On Dock, Atlantic Ports) | | | |
| Kraft No. 1 | 1.70 | @ | 1.80 |
| Kraft No. 2 | 1.50 | @ | 1.60 |
| (F.o.b. Pulp Mill) | | | |
| Kraft Domestic | 1.70 | @ | 2.35 |
| (Delivered) | | | |
| Soda Bleached | 2.50 | @ | — |

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

## Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1 | 5.75 | @ | 6.00 |
| Silesias No. 1 | 3.75 | @ | 4.00 |
| New Unbleached | 6.25 | @ | 6.50 |
| New Soft Blacks | 3.00 | @ | 3.25 |
| Blue Overall | 3.50 | @ | 3.75 |
| Fancy | 2.50 | @ | 2.75 |
| Washables | 1.75 | @ | 2.00 |
| Mixed Khaki Cuttings | 3.00 | @ | 3.25 |
| O. D. Khaki Cuttings | 3.75 | @ | 4.00 |
| Men's Corduroy | 1.50 | @ | 1.75 |
| New Mixed Blacks | 2.50 | @ | 2.75 |

Old Rags

| | | | |
|---|---|---|---|
| White, No. 1— | | | |
| Repacked | 3.00 | @ | 3.50 |
| Miscellaneous | 2.75 | @ | 3.25 |
| White, No. 2— | | | |
| Repacked | 1.75 | @ | 2.25 |
| Miscellaneous | 1.50 | @ | 1.75 |
| Thirds and Blues— | | | |
| Repacked | 1.50 | @ | 1.75 |
| Miscellaneous | 1.25 | @ | 1.50 |
| Black Stockings | 2.50 | @ | 3.00 |
| Roofing Rags— | | | |
| No. 1 | 1.22 | @ | 1.30 |
| No. 2 | 1.10 | @ | 1.15 |
| No. 3 | .95 | @ | 1.00 |
| No. 4 | .95 | @ | 1.00 |
| No. 5A | .80 | @ | .85 |

## Foreign Rags

New Rags

| | | | |
|---|---|---|---|
| New Dark Cuttings | 1.75 | @ | 1.85 |
| New Mixed Cuttings | 1.80 | @ | 1.90 |
| New Light Silesias | 3.75 | @ | 4.00 |
| Light Flannelettes | 3.75 | @ | 4.00 |
| Unbleached Cuttings | 6.50 | @ | 6.75 |
| New White Cuttings | 6.56 | @ | 6.75 |
| New Light Oxfords | 3.25 | @ | 3.50 |
| New Light Prints | 2.75 | @ | 3.00 |

Old Rags

| | | | |
|---|---|---|---|
| No. 1 White Linens | 7.50 | @ | 8.00 |
| No. 2 White Linens | 6.50 | @ | 7.00 |
| No. 3 White Linens | 4.50 | @ | 5.00 |
| No. 4 White Linens | 2.25 | @ | 2.50 |
| No. 1 White Cotton | 4.25 | @ | 4.75 |
| No. 2 White Cotton | 3.25 | @ | 3.75 |
| No. 3 White Cotton | 2.50 | @ | 2.75 |
| No. 4 White Cotton | 1.90 | @ | 2.10 |
| Extra Light Prints | 2.00 | @ | 2.25 |
| Ord. Light Prints | 1.75 | @ | 1.85 |
| Med. Light Prints | 1.55 | @ | 1.65 |
| Dutch Blue Cottons | 1.75 | @ | 1.85 |
| French Blue Linens | 2.30 | @ | 2.40 |
| German Blue Linens | 2.15 | @ | 2.25 |
| German Blue Cottons | 1.70 | @ | 1.80 |
| Checks and Blues | 1.30 | @ | 1.40 |
| Linsey Garments | 1.50 | @ | 1.65 |
| Dark Cottons | 1.15 | @ | 1.25 |
| Old Shopperies | 1.00 | @ | 1.05 |
| New Shopperies | .93 | @ | 1.05 |
| French Blues | 1.70 | @ | 1.80 |

## Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | 1.60 | @ | 1.70 |
| Domestic | 1.45 | @ | 1.55 |
| Wool Tares, light | 1.65 | @ | 1.70 |
| Wool Tares, heavy | 1.75 | @ | 1.80 |
| Bright Bagging | 1.65 | @ | 1.70 |
| Manila Rope | | | |
| Foreign | 1.85 | @ | 2.00 |
| Domestic | 1.75 | @ | 2.00 |
| Small Mixed Rope | 1.10 | @ | 1.35 |
| New Burlap Cut | 3.00 | @ | 3.25 |
| Hessian Jute Threads— | | | |
| Foreign | 2.60 | @ | 2.75 |
| Domestic | 2.80 | @ | 3.00 |

## Old Waste Papers

(F. o. b. New York)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Envelope Cuttings | 2.50 | @ | 2.60 |
| Ordinary Hard White No. 1 | 2.10 | @ | 2.15 |
| Hard White No. 2 | 1.90 | @ | 2.00 |
| Soft White No. 1 | 1.70 | @ | 1.80 |
| Flat Stock— | | | |
| Stitchless | .65 | @ | .75 |
| Over issue Mag. | .65 | @ | .75 |
| Solid Flat Book | .45 | @ | .50 |
| Crumpled No. 1 | .35 | @ | .40 |
| Solid Book Ledger | 1.50 | @ | 1.65 |
| Ledger Stock | 1.00 | @ | 1.10 |
| New B. B. Chips | .30 | @ | .35 |
| Manilas— | | | |
| New Env. Cut | 1.70 | @ | 1.80 |
| New Cuttings | 1.35 | @ | 1.45 |
| Print | Nominal | | |
| Bogus Wrapper | .40 | @ | .50 |
| Container | Nominal | | |
| Old Kraft Machine— | | | |
| Compressed bales | 1.10 | @ | 1.20 |
| News— | | | |
| No. 1 White News | 1.20 | @ | 1.30 |
| Strictly Overissue | .60 | @ | .65 |
| Strictly Folded | .20 | @ | — |
| No. 1 Mixed Paper | .20 | @ | — |

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### Twines
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| **Coarse Polished—** | | | |
| India | .11¼ | @ | .13¾ |
| Belg. White Hemp | .12¼ | @ | .15¾ |
| India Compress | .11¾ | @ | .12¾ |
| **Fine Polished—** | | | |
| Fine India | .19 | @ | .21 |
| Special | .17 | @ | .19 |
| B. C. | .25½ | @ | .27½ |
| **Unpolished—** | | | |
| Box | .10 | @ | .10½ |
| Paper Makers | .07 | @ | .12 |
| Tube Rope | .08 | @ | .13½ |
| Wall Paper | .09 | @ | .12½ |
| Wrapping | .13 | @ | .18 |
| Special | .13 | @ | — |
| Soft Fiber Rope | .10¼ | @ | .10¾ |

## CHICAGO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Rag Bond | .12 | @ | .50 |
| Water Marked Sulphite Bond | .06¾ | @ | .11 |
| Sulphite Bond | .05½ | @ | .11 |
| Superfine Writing | .18 | @ | .24 |
| No. 1 M. F. Book | .06½ | @ | .07¼ |
| No. 2 M. F. Book | .05¼ | @ | .06¼ |
| No. 1 S.&S.C. Book | .06¼ | @ | .07¼ |
| No. 2 S.&S.C. Book | .05¼ | @ | .06½ |
| Coated Book | .07 | @ | .12 |
| Coated Label | .07 | @ | .08½ |
| No. 1 Manila | .04½ | @ | .05¼ |
| No. 1 Fibre | .04¾ | @ | .05¼ |
| No. 2 Manila | .04¼ | @ | .04¾ |
| Butcher's Manila | .03¼ | @ | .03¾ |
| No. 1 Kraft | 4.75 | @ | 5.00 |
| Southern Kraft | 3.88 | @ | 4.25 |
| No. 2 Kraft | 3.88 | @ | 4.25 |
| Wood Tag Boards | .04¾ | @ | .06¼ |
| Sulphite Screenings | .03 | @ | .03¾ |
| Manila Tissue | .05¾ | @ | .07 |
| White Tissue | .07 | @ | .09 |

(Delivered Central Territory)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls, contract | 41.00 | @ | — |
| Sheets, open | 46.00 | @ | 48.50 |
| Boards, per ton— | | | |
| Plain Chip | 46.50 | @ | — |
| Solid News | 50.00 | @ | — |
| Manila Lined Chip | 55.00 | @ | — |
| Patent coated | 65.00 | @ | — |
| Container Lined— | | | |
| 85 Test, per 1000 sq. ft. | | | 1.70 |
| 100 Test, per 1000 sq. ft. | | | 1.85 |

### Old Papers
(F. o. b. Chicago)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 White Envelope cuttings | 1.70 | @ | 2.00 |
| No. 1 Hard White | 1.40 | @ | 1.65 |
| No. 1 Soft White | 1.25 | @ | 1.50 |
| Ledger & Writings | .70 | @ | .80 |
| Solid Books | .60 | @ | .70 |
| Blanks | 1.00 | @ | 1.05 |
| Kraffs | .80 | @ | .90 |
| New Kraft Cuts | 1.20 | @ | 1.30 |
| Manila Env. Cuts | 1.25 | @ | 1.30 |
| Ex. No. 1 Manila | 90 | @ | 1.00 |
| Print Manila | .40 | @ | .50 |
| Overissue News | .40 | @ | .45 |
| Old Newspapers— | | | |
| No. 1 | .30 | @ | .35 |
| Mixed Papers— | | | |
| No. 1 | .15 | @ | .20 |
| Roofing Stocks— | | | |
| No. 1 | 30.00 | @ | — |
| No. 2 | 28.00 | @ | — |

## PHILADELPHIA

### Paper
(Delivered Philadelphia)

| | | | |
|---|---|---|---|
| Bonds | .05-9/10 | @ | .38 |
| Ledgers | .06 9/10 | @ | .40 |
| Writings— | | | |
| Fine No. 3 | .05 | @ | .06 |
| Superfine | .10 | @ | .18 |
| Extra Fine | .15 | @ | .20 |
| Fine | .15 | @ | .21 |
| Fine, No. 2 | .10 | @ | .25 |
| Book, M. F. | .05¼ | @ | .06¾ |
| Book, S. S. & C. | .05½ | @ | .07½ |
| Book, Coated | .06½ | @ | .09 |
| Coated Lithograph | .06¾ | @ | .08½ |
| Label | .07 | @ | .11 |
| No. 1 Jute Manila | 6.25 | @ | — |
| Manila Sul., No. 1 | 5.25 | @ | — |
| Manila No. 2 | 3.75 | @ | — |
| No. 1 Kraft | 5.00 | @ | — |
| Southern Kraft | 4.75 | @ | — |
| Common Bogus | .03 | @ | — |
| News Print Rolls | 40.00 | @ | — |
| Straw Board | 40.00 | @ | 45.00 |
| News Board | 40.00 | @ | — |
| Chip Board | 37.50 | @ | — |
| Wood Pulp Board | 70.00 | @ | 85.00 |
| Binder Boards— | | | |
| No. 1, per ton | 75.00 | @ | 80.00 |
| No. 2, per ton | 70.00 | @ | 75.00 |
| Carload lots | 65.00 | @ | 70.00 |
| Tarred Felts— | | | |
| Regular | 32.25 | @ | 34.25 |
| Slaters (per roll) | .84 | @ | .94 |
| Best Tarred, 1-ply (per roll) | 1.95 | @ | 2.10 |
| Best Tarred, 2-ply (per roll) | 1.40 | @ | 1.75 |
| Best Tarred, 3-ply | 1.00 | @ | 2.25 |

### Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1. | .03½ | @ | .04 |
| New White, No. 2. | .03½ | @ | .04 |
| Light Silesias | .03½ | @ | .03 |
| Silesias, No. 1 | .03 | @ | .03½ |
| Black Silesias, soft. | .02½ | @ | .03 |
| New Unbleached | .05 | @ | .05½ |
| Washable, No. 1 | 01½ | @ | .02 |
| Blue Overall | .03½ | @ | .04 |
| Cottons—According to grades— | | | |
| Washable, No. 2 | .02½ | @ | .03 |
| New Blue | .01½ | @ | .03 |
| Fancy | .01½ | @ | .03 |
| New Black Soft | .02 | @ | .04 |
| New Light Seconds | .01½ | @ | .02 |
| New Dark Seconds | 1.50 | @ | 1.75 |
| Khaki Cuttings— | | | |
| No. 1 O.D. | .03 | @ | .04 |
| No. 2 Mixed | .03 | @ | .04 |
| Corduroy | .02 | @ | .03 |
| New Canvas | .03½ | @ | .04½ |
| New Black Mixed | .02½ | @ | .03½ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked | 2.50 | @ | 3.50 |
| Miscellaneous | 1.75 | @ | 2.25 |
| M. G. | 3.00 | @ | 3.75 |
| Thirds and Blues— | | | |
| Miscellaneous | 1.00 | @ | 1.50 |
| Repacked | 1.50 | @ | 2.00 |
| Black Stockings (Export) | 2.00 | @ | 3.50 |
| Roofing Stock— | | | |
| Foreign No. 1 | .50 | @ | .75 |
| Repacked | .70 | @ | .85 |

### Bagging
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny, No. 1— | | | |
| Foreign | 1.25 | @ | 1.50 |
| Domestic | 1.50 | @ | 1.75 |
| Manila Rope | 2.00 | @ | 2.25 |
| Sisal Rope | 1.25 | @ | 1.50 |
| Mixed Rope | 1.00 | @ | 1.10 |
| Scrap Burlaps— | | | |
| No. 1 | 1.25 | @ | 1.50 |
| No. 2 | .80 | @ | 1.00 |
| Wool Tares, heavy | 2.75 | @ | — |
| Mixed Strings | 1.15 | @ | 1.25 |
| No. 1 New Light Burlap | 2.25 | @ | 2.50 |
| New Burlap Cuttings | 2.00 | @ | 2.25 |

### Old Papers
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 2.25 | @ | 2.30 |
| No. 2 Hard White | 1.90 | @ | 2.00 |
| No. 1 Soft White | 1.80 | @ | 1.85 |
| No. 2 Soft White | 1.25 | @ | 1.30 |
| No. 1 Mixed | — | @ | .75 |
| Solid Ledger Stock | 1.50 | @ | 1.60 |
| Writing Paper | 1.00 | @ | 1.10 |
| No. 1 Books, heavy | .55 | @ | .60 |
| No. 1 New Manila | 1.35 | @ | 1.40 |
| Print Manila | .50 | @ | .60 |
| Container Manila | .45 | @ | .50 |
| Old Kraft | 1.00 | @ | — |
| No. 1 Mixed Paper | .20 | @ | — |
| Straw Board Chip | .20 | @ | — |
| Binders Board Chip | .20 | @ | — |
| Corrugated Board | .40 | @ | — |
| Overissue News | .50 | @ | — |
| Old Newspapers | .30 | @ | — |

## BOSTON

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers— | | | |
| Sulphite | .06 | @ | .12½ |
| Rag Content | .12 | @ | .30 |
| All Rag | .36 | @ | .52½ |
| Bonds— | | | |
| Sulphite | .07¼ | @ | .11 |
| Rag Content | .12 | @ | .30 |
| All Rag | .36 | @ | .65 |
| Writings | .06½ | @ | .20 |
| Superfines | .11 | @ | .31 |
| Book, Super | .06 | @ | .09 |
| Book, M. F. | .05½ | @ | .08¾ |
| Book, Coated | .08¾ | @ | .18 |
| Coated Litho | .09 | @ | .12 |
| Label | .09½ | @ | .15 |
| Jute Manila No. 1 | .11 | @ | .13 |
| Manila, Sul. No. 1 | .04¾ | @ | .06¾ |
| Manila, Sul. No. 2 | .03¾ | @ | .04½ |
| No. 1 Kraft | .04¾ | @ | .05 |
| No. 2 Kraft | .04½ | @ | .04¾ |
| (F. o. b. Boston) | | | |
| Southern Kraft | .03¾ | @ | .04¾ |
| (F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.) | | | |
| Common Bogus | .02 | @ | .02¾ |
| (Delivered New England points) | | | |
| News Print Rolls | 39.50 | @ | — |
| Straw Board, rolls | .009 | — | @35.00 |
| Straw Board in Sheets, basis 35s to 70s | — | @ | 40.00 |
| Filled News Board | 40.00 | @ | 45.00 |
| Chip Board | 37.50 | @ | 40.00 |
| Chip Board (Creasing) | 37.50 | @ | 40.00 |
| Single Manila Lined Chip | 47.50 | @ | 52.50 |
| Single White, Patent Coated News Board (Bender) | 55.00 | @ | 65.00 |
| Wood Pulp Board | 70.00 | @ | 75.00 |
| Binder Boards (Standard Grade) | 67.00 | @ | 75.00 |

### Old Papers
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 2.00 | @ | 2.20 |
| No. 1 Soft White | 1.75 | @ | 1.90 |
| No. 2 Mixed | .75 | @ | .80 |
| Solid Ledger Books | 1.40 | @ | 1.50 |
| Overissue Ledger Stock | 1.15 | @ | 1.30 |
| Mixed Ledgers | .85 | @ | .90 |
| No. 1 Books, heavy | .55 | @ | .65 |
| No. 1 Books, light | .50 | @ | .60 |
| Crumpled Stitchless Book Stock | .50 | @ | .60 |
| Manila Env. Cuttings | 1.30 | @ | 1.40 |
| No. 1 Old Manila | .60 | @ | .65 |
| White Blank News | 1.15 | @ | 1.20 |
| No. 1 Kraft | .90 | @ | .95 |
| Mixed Papers | .17½ | @ | .20 |
| Print Manila | .40 | @ | .45 |
| Container Manilas | .25 | @ | — |
| Overissue News | — | @ | .35 |
| Old Newspapers | .25 | @ | .27½ |
| Box Board Chips | — | @ | .25 |
| Corrugated boxes | .32½ | @ | .37½ |
| Screening Wrappers | .40 | @ | .45 |

### Bagging
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Manila Rope— | | | |
| Foreign | 1.90 | @ | 2.00 |
| Domestic | 1.50 | @ | 1.75 |
| Transmission Rope | .90 | @ | 1.00 |
| Jute Rope | 1.50 | @ | 1.60 |
| Jute Carpet Threads | .65 | @ | .70 |
| Gunny No. 1— | | | |
| Foreign | — | @ | 1.70 |
| Domestic | 1.35 | @ | — |
| Bleachery Burlap | 4.00 | @ | 4.50 |
| Foreign | — | @ | 1.50 |
| Domestic | 1.25 | @ | 1.35 |
| Scrap Burlap | 1.35 | @ | 1.40 |
| Scrap Sisal | 1.05 | @ | 1.15 |
| Scrap Sisal for Shredding | 1.10 | @ | 1.25 |
| Wool Tares, heavy | 1.30 | @ | 1.35 |
| New Burlap Cuttings | 1.60 | @ | 1.75 |
| Australian Wool Pouches | 2.50 | @ | 2.75 |
| Heavy Baling Bagging | 1.40 | @ | 1.50 |
| Paper Mill Bagging | — | @ | 1.10 |
| Bagging No. 2 | .70 | @ | .75 |

### Domestic Rags (New)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints | .01¾ | @ | .02 |
| New White No. 1. | .05½ | @ | .06 |
| New White No. 2. | .03½ | @ | .04 |
| Silesias No. 1 | .04¼ | @ | — |
| New Black Silesias | .02½ | @ | .03 |
| Soft Unbleached | .06¼ | @ | .06½ |
| Blue Cheviot | — | @ | 4.65 |
| Fancy | .0195 | @ | .021 |
| Washable | .0165 | @ | .0170 |
| Cottons—According to grades— | | | |
| Blue Overalls | .04 | @ | — |
| New Black, soft | .04 | @ | .04¼ |
| Khaki Cuttings | .03½ | @ | .03¾ |
| O. D. Khaki | .03 | @ | .03¾ |
| Corduroy | .01¾ | @ | .02 |
| New Canvas | — | @ | .05 |
| B.V.D. Cuttings | — | @ | .06¼ |

### Domestic Rags (Old)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Canvas | .04¼ | @ | |
| White No. 1— | | | |
| Repacked | — | @ | 2.75 |
| Miscellaneous | 2.50 | @ | 2.75 |
| White No. 2— | | | |
| Repacked | 1.90 | @ | 2.00 |
| Miscellaneous | 2.00 | @ | 2.25 |
| Twos and Blues | 1.25 | @ | 1.50 |
| Thirds and Blues | | | |
| Repacked | 2.00 | @ | 2.75 |
| Miscellaneous | 2.00 | @ | 2.25 |
| Black Stockings | 2.50 | @ | 3.00 |
| Roofing Stock | | | |
| No. 1 | 1.20 | @ | 1.25 |
| No. 2 | .95 | @ | 1.00 |
| No. 3 | — | @ | .65 |

### Foreign Rags
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Dark Cottons | 1.25 | @ | 1.40 |
| New White Shirt Cuttings | 5.50 | @ | 6.00 |
| Dutch Blues | 2.00 | @ | 2.50 |
| New Checks & Blues | 2.50 | @ | 3.00 |
| Old Fustians | 1.50 | @ | 1.55 |
| Old Linsey Garments | — | @ | 1.95 |

## TORONTO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bond— | | | |
| No. 1 Sulphite | .11 | @ | — |
| No. 2 Sulphite | .08½ | @ | — |
| No. 1 Colored | .12 | @ | — |
| No. 2 Colored | .09 | @ | — |
| Ledgers (sulphite) | | | |
| Ledgers, No. 1 | .34½ | @ | — |
| Ledgers, No. 2 | .25½ | @ | — |
| Writing | .09 | @ | .09½ |
| Book— | | | |
| No. 1 M. F. (Carloads) | 6.50 | @ | — |
| No. 2 M. F. (Carloads) | 6.00 | @ | — |
| No. 3 M. F. (carloads) | 5.00 | @ | — |
| No. S. C. (carloads) | 7.00 | @ | — |
| No. 2 S. C. (carloads) | 6.50 | @ | — |
| No. 3 S. C. (carloads) | 5.20 | @ | — |
| No. 1 Coated and Litho | 12.00 | @ | — |
| No. 2 Coated and Litho | 10.50 | @ | — |
| No. 3 Coated and Litho | 9.50 | @ | — |
| Coated tinted | 13.00 | @ | — |
| Wrapping—delivered | | | |
| Rag Brown | 4.75 | @ | — |
| White Wrap | 3.50 | @ | — |
| "B" Manila | 5.25 | @ | — |
| No. 1 Manila | 5.40 | @ | — |
| Fiber | 5.40 | @ | — |
| Kraft, M. F. | 5.90 | @ | — |
| Kraft No. 2 | 5.40 | @ | — |

(F.O.B. Cars Toronto)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls (contract) | 39.50 | @ | — |
| Sheets | 42.00 | @ | — |

### Pulp
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ground wood | 27.00 | @ | — |
| Unbleached sulphite | 42.00 | @ | — |
| Book (Class 1) | 58.00 | @ | — |
| Writing (Class 2) | 59.00 | @ | — |
| Select (Class 3) | 60.00 | @ | — |

### Old Waste Paper
(In carload lots, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Env. Cut | 2.00 | @ | 2.30 |
| Soft White | 1.60 | @ | 1.90 |
| White Blk. News | 1.25 | @ | 1.40 |
| Book and Ledger— | | | |
| Flat Magazine and Book Stock (old) | .90 | @ | 1.00 |
| Light and Crumpled Book Stock | .80 | @ | .90 |
| Ledgers and Writings | 1.00 | @ | 1.05 |
| Manilas— | | | |
| New Manila Cut | 1.25 | @ | 1.40 |
| Printed Manilas | .55 | @ | .60 |
| Kraft | 1.20 | @ | 1.60 |
| News and Scrap— | | | |
| Strictly Overissue | .60 | @ | — |
| Strictly Folded | .50 | @ | — |
| No. 1 Mixed Paper | .40 | @ | — |

### Domestic Rags
(Price to mills, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| No. 1 White Shirt Cuttings | .06 | @ | — |
| Fancy Shirt Cuttings | .02 | @ | — |

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## TABLE OF CONTENTS


| | |
|---|---|
| Open Government Paper Bids | 11 |
| Institute Closes Fifth Year | 12 |
| Water Power Problems | 12 |
| Chicago Paper Demand Declines Slightly | 14 |
| Paper Problems Discussed | 14 |
| Association Activities | 14 |
| Another Hand Bill Measure | 14 |
| Newfoundland Expands Newsprint Production | 15 |
| Howard Smith Paper Mills | 15 |
| New NRA Setup | 15 |
| Manhattan's New Catalog | 15 |
| Philadelphia Market Outlook Brighter | 16 |
| Boston Market Conditions Irregular | 17 |
| Champion Companies May Merge | 18 |
| L. T. Stevenson Receives D.C.S. Degree | 18 |
| Dr. Charles H. Herty Replies to "Hypothetical Cheap Newsprint" | 19 |
| Obituary | 33 |
| Aldine Paper Co. Trains New Men | 33 |
| American Paper Exports Elect Officers | 33 |
| Construction News | 34 |
| Japan Increasing Pulp Production | 34 |
| **Editorial** | 36 |
| Plan Pulp Mill on the Ogeechee | 37 |
| Whitaker Paper Co. Declares Dividend | 37 |
| Paper Cases Scheduled for Trial | 37 |
| Coast Paper Mills Increase Wages | 37 |
| **Technical Section** | |
| TAPPI and Superintendents at Winchendon | 39 |
| Beating vs. Jordaning in Paper Making | 41 |
| Is the Beater Obsolete? | 47 |
| International Holds Annual Meeting | 51 |
| Weekly Production Ratio Report | 52 |
| A. Thomson Gets Honorary Degree | 52 |
| General Steadiness in Indianapolis | 52 |
| Government Paper Awards | 52 |
| W. D. Maxim Goes to Corinth | 52 |
| Imports of Paper and Paper Stock | 53 |
| **New York Market Review** | 55 |
| **Miscellaneous Markets** | 56 |
| **Market Quotations** | 56 |


THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements, 60-61

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